National® Brand

COMPUTATION NOTEBOOK

Department NSCL

Subject HiRA

Name e14030, 15190 & 16042

Address Betty Kang

43-648

75 Sheets, 4 x 4 Quad., 11 3/4" x 9 1/4"

0 73333 43648 8

Rediform Inc. • Coppell, TX 75019

Made in Mexico

Run #	Beam	Energy	Brho	Target	Start Time	Stop	Detectors	Type
14	gimbo							
15	Cocktail	50	2.1	Al			Hira	Calibration
16	Cocktail	50	2.1	Al	10:21	10:47	Hira	Calibration
17	Cocktail	50	2.1	Al	10:57		Hira	Calibration
18	"	"	"	"			"	"
19	"	"	"	"			"	"
20	"	"	"	"			"	"
21	"	"	"	"				
22	"	"	"	"				
23	Cocktail	50	2.1	CH_2	02:07		HiRA	Calibration
24	"	"	"	"	02:25		HiRA	"
25	"	"	"	"	02:45		"	"
26	"	"	"	"	03:00		"	"
27	"	"	"	"	03:16		"	"
28	"	"	"	"	03:40		"	"
29	"	"	"	"	04:09		"	"
30	"	"	"	"	04:31		"	"
31	"	"	"	"	05:02		"	"
32	"	"	"	"	05:30		"	"
33	"	"	"	"	05:53	06:19	"	"
34	"	"	"	"	06:21	6:50	"	"
35	"	"	"	"	6:52		"	"
36	"	"	"	"	9:02	9:29	"	"
37	"	"	"	"	9:36	9:58	"	"
38	"	"	"	"	9:51	10:18	"	"
39	"	"	"	"	10:19		"	"
40	"	"	"	"	10:56	11:22	"	"
41	"	"	"	"	11:22		"	"

- Changing Beam Focusing
- Changing didn't help so we will not be changing the focus

- Changing beam to Cocktail beam at 1.1 brho

4:45 Kyle Lawers CsI thresholds to 55 from 130

~~Start~~ 42	Cocktail		1.2	Al	5:40		Hira	Calibration
43	Cocktail		1.2	Al	5:58		Hira	Calibration
44	Cocktail		1.2	Al	6:28		Hira	Calibration
45	"		"	"			HiRA	"
46	"		1.2	Al	10:30		HiRA	"
47	"		1.2	Al	10:44		HiRA	"
(Calibration) 48	"		1.2	Al	11:00		HiRA	"

Type
Calibration
Calibration
Calibration
"
"
"

Calibration
//
//
//
//
//
//
/
//
//

Procedures

Entering the Vault
1) On

Notes
- Telescope 10 missing chip on Back: Noticed run 33 ~ 6:06 AM

- Tommy Elog missed run 82

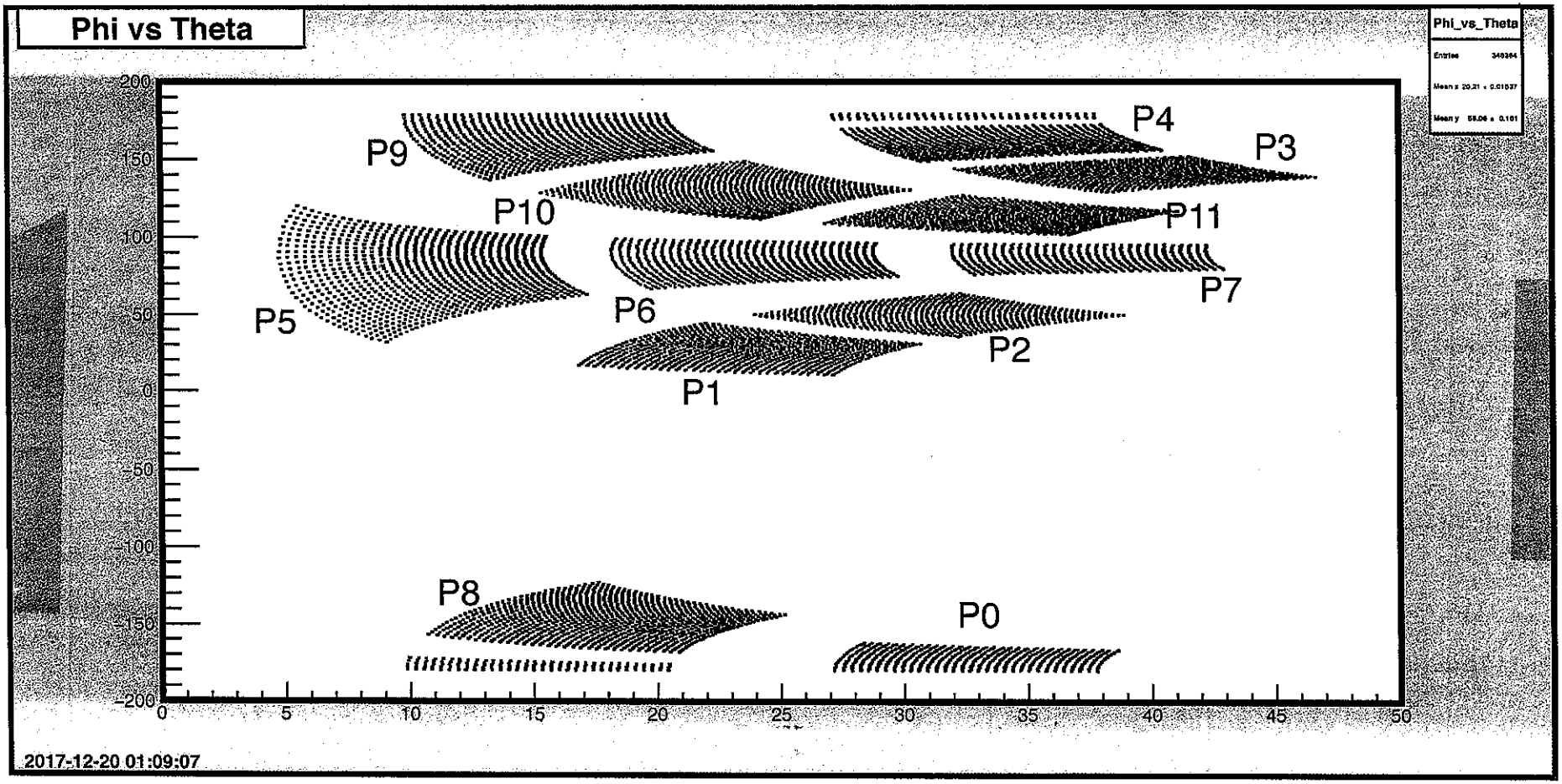
- E14030 For HiRA
- Range 36 because intensity cut by 10 then 5
-
-

CSI North: 11k	Down: 31k	South: 28k	OR: 61k
CSI North: 8600,	Down: 25k	South: 22k	Or: 48k
CSI North: 900	Down: 4300	South: 4100	Or: 8100
CSI North:	Down:	South:	Or:
CSI North: 874	Down: 4300	South: 3800	Or 7800
CSI North:	Down:	South:	Or
CSI North 968	Down 4373	South 4000	Or 8000

Calibration
Calibration
Calibration
"
"
"
"

CSI North: 60	Down: 500	South: 250	Or: 800
CSI North: 57	Down 655	South 300	Or

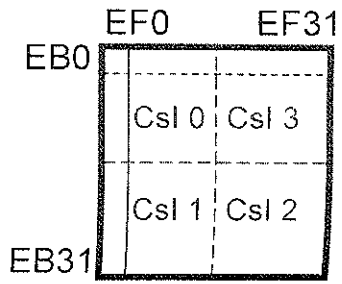
after a lot of working around in S2 vault on fast clean
Some CS2 2-1 Not working Also 3-3 & 3-1


Phi vs Theta
Phi_vs_Theta
Entries 340364
Mean x 20.21 ± 0.01537
Mean y 68.06 ± 0.101
P0
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
200
150
100
50
0
-50
-100
-150
-200
0
5
10
15
20
25
30
35
40
45
50
2017-12-20 01:09:07

Tower 1	Tower 2	Tower 3	Orphan
		U1 P8 E:2085-6 =1490 MB2 5,6/5,6 U = 310 [V] I = 1.64 [μA]	U5 P0 E:2942-23 =1537 MB1 1,2/1,2 U = 180 [V] I = [μA]
U9 P1 E:3168-7 =1521 MB1 3,4/3,4 U = 380 [V] I = [μA]	U8 P5 E:2503-15 =n/a MB1 11,12/11,12 U = 250 [V] I = 4.4 [μA]	U7 P9 E:2883-10 =1536 MB2 7,8/7,8 U = 340 [V] I = [μA]	U13 P4 E:3111-3 =1517 MB1 9,10/9,10 U = 400 [V] I = [μA]
U15 P2 E:2572-3 =1500 MB1 5,6/5,6 U = 220 [V] I = 1.8 [μA]	U12 P6 E:2344-03 =1491 MB2 1,2/1,2 U = 350 [V] I = 1.71 [μA]	U10 P10 E:2572-4 =1471 MB2 9,10/9,10 U = 265 [V] I = 2.08 [μA]	U6 P3 E:2085-8 =1496 MB1 7,8/7,8 U = 290 [V] I = 1.24 [μA]
	U14 P7 E:2113-5 =1460 MB2 3,4/3,4 U = 450 [V] I = 1.8 [μA]	U11 P11 E:2344-05 =1491 MB2 11,12/11,12 U = 350 [V] I = 2.02 [μA]	

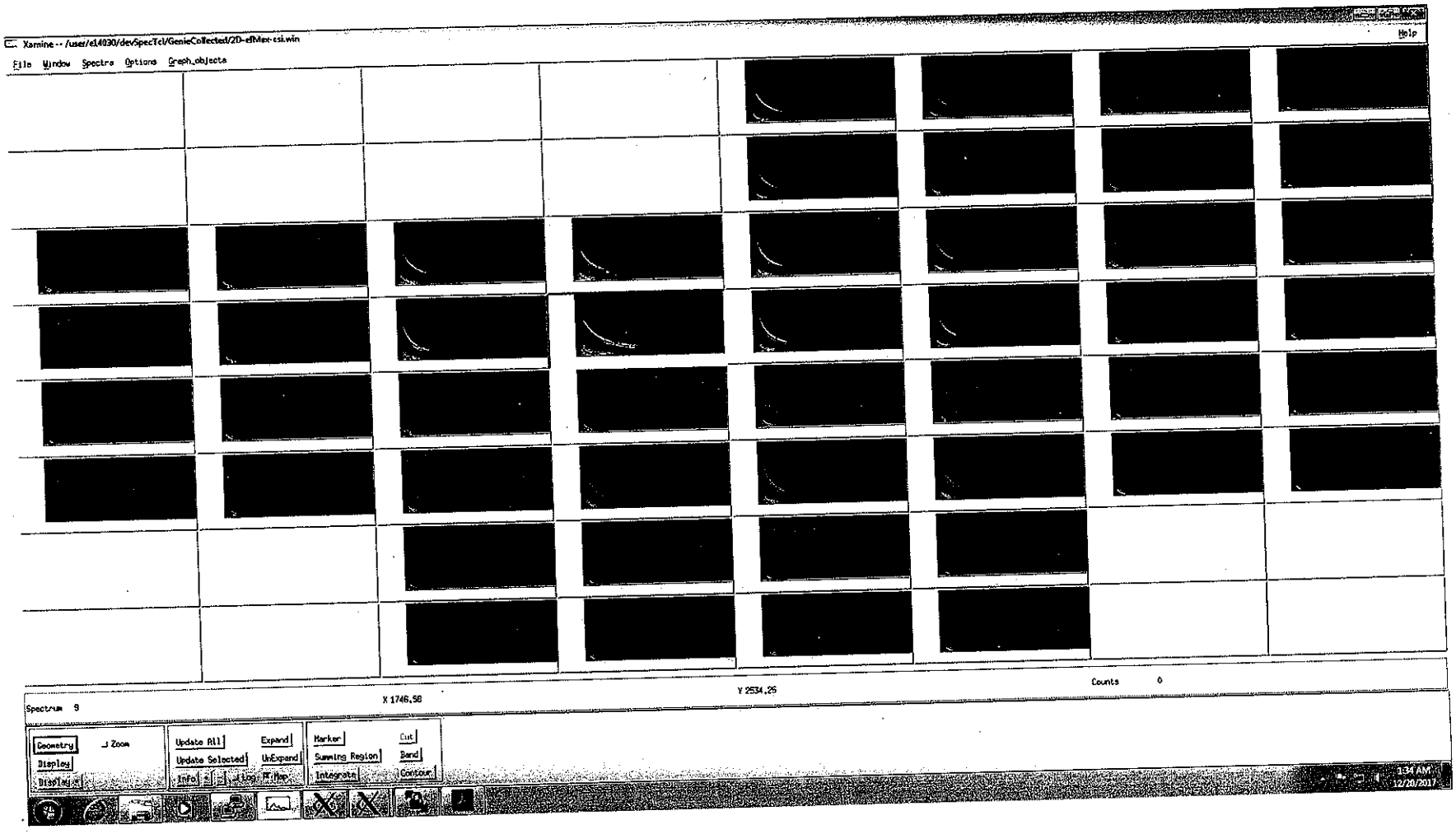
CB/slot

☐ E Front

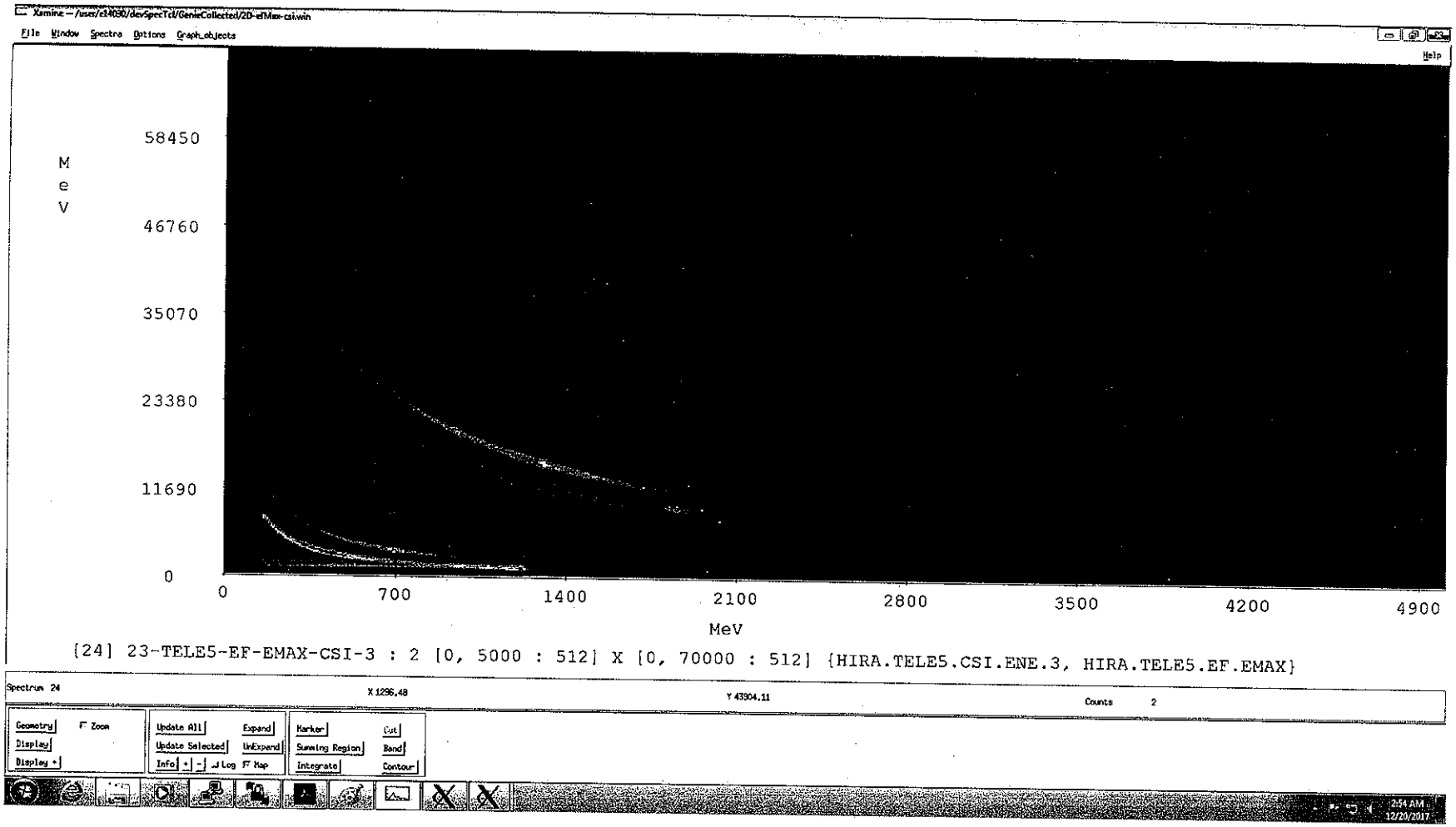


e16042

12/22/17


Xamine -- /user/e14030/devSpecTcl/GenieCollected/2D-efMax-csi.win
File Window Spectra Options Graph_objects
Help
Spectrum 9
X 1746.58
Y 2534.25
Counts 0
Geometry
Display
Zoom
Update All
Update Selected
Expand
UnExpand
Marker
Summing Region
Integrate
Cut
Band
Contour
Info
1:34 AM
12/20/2017

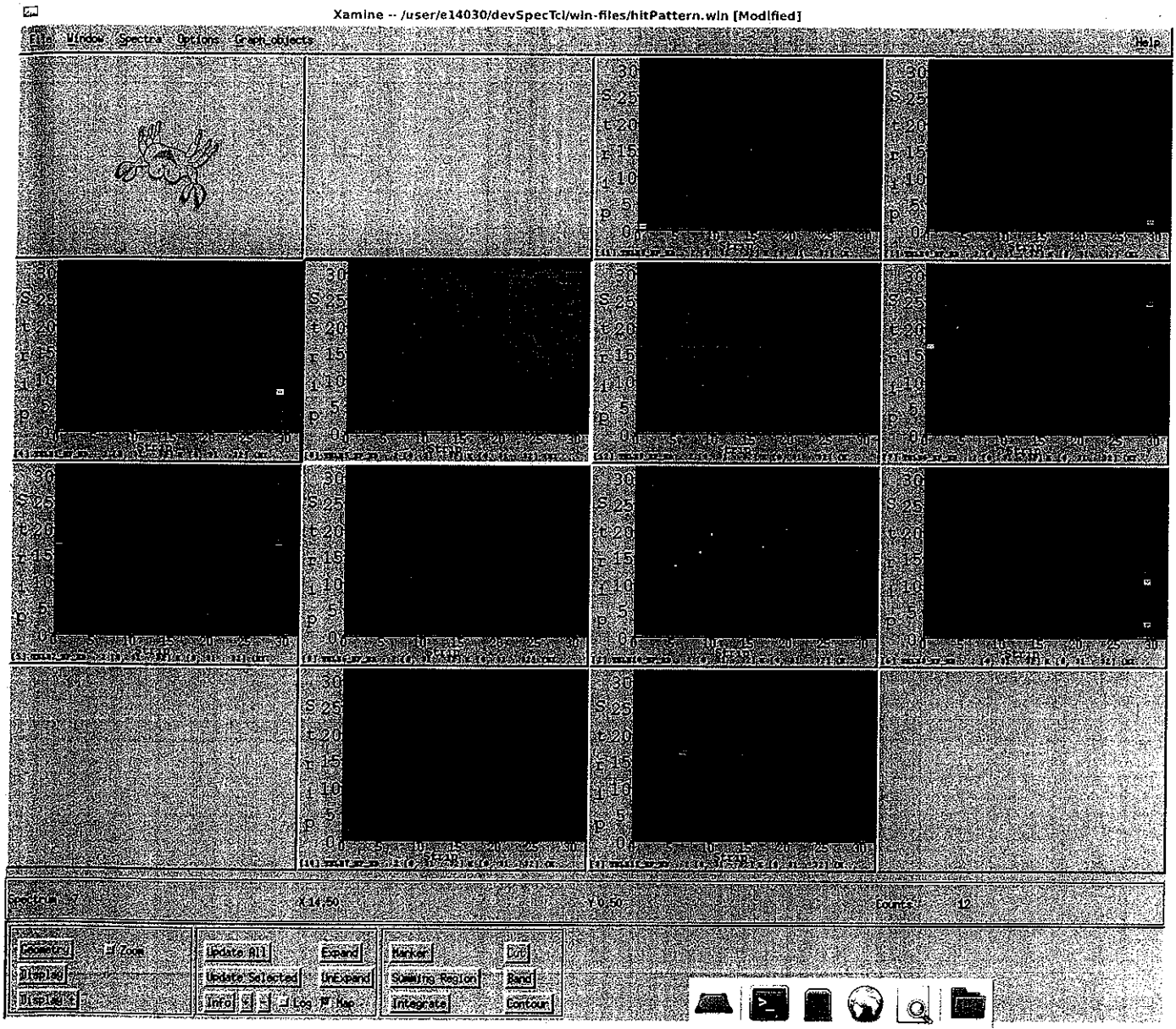
Run 15

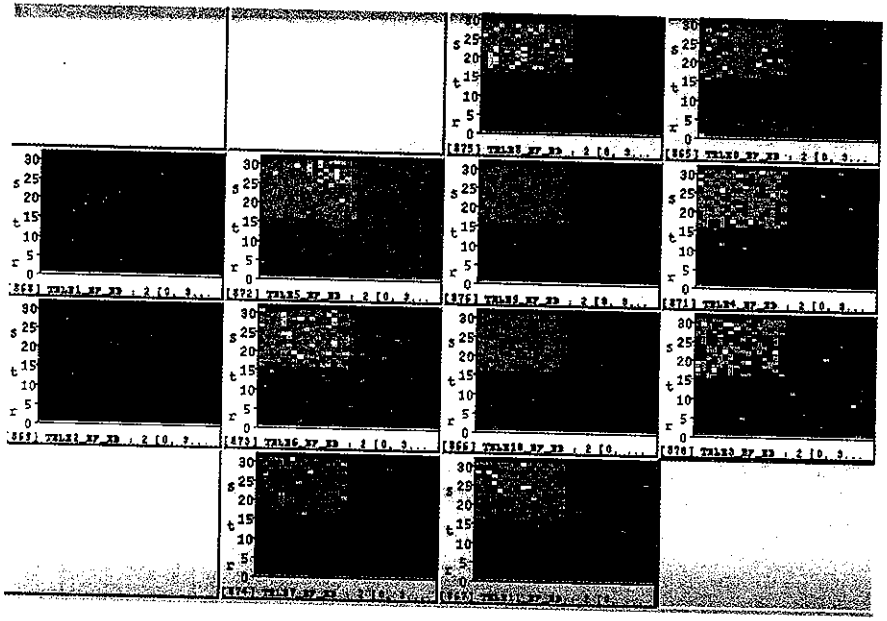


Run22 tele5 CsI 3

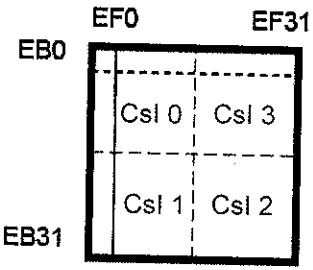
	Time	1	2	3	4	5	6	7	8	9	10	11	12
Deg Concrete	8/14	2.5	0.6	1.7	0.7	4.4	4.2	1.5	2.7	1.8	1.3	1.8	1.7

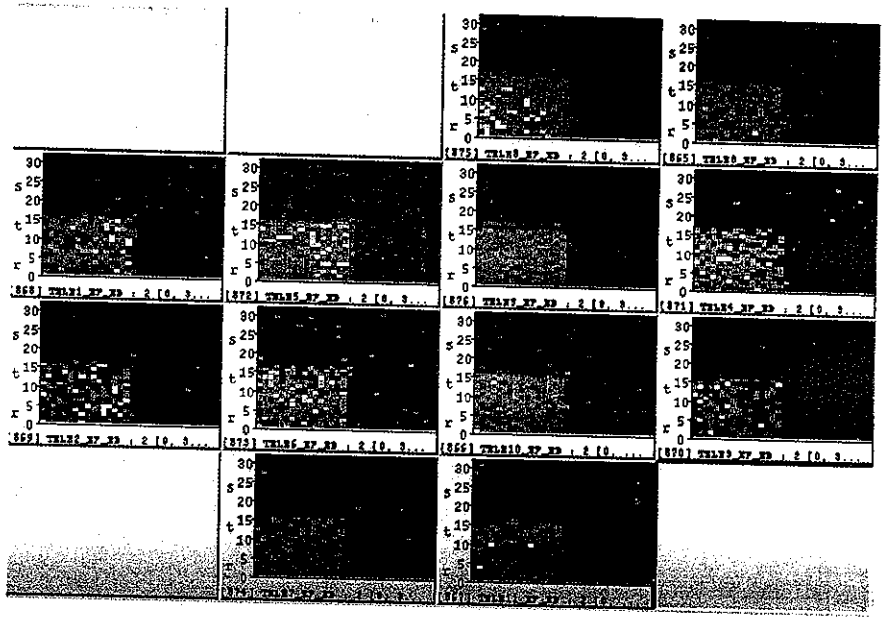
CSI Thresholds set 130


Xamine -- /user/e14030/devSpecTcl/win-files/hitPattern.win [Modified]
File Window Spectra Options Gate objects Help
Update All
Update Selected
Info
Expand
Unexpand
Integrate
Marker
Summing Region
Band
Contour
Counts: 12



HiRA Telescope: 0-11
CSI: 0





HiRA Telescope: 0-11
CSI: 1

12/20/2017

Run #	Beam	Energy	Brho	Target	Start time	Stop	Detectors	Type Calibration
KZ 49	Cocktail		1.2	Al	11:10		HiRA	
KZ 50	Cocktail		1.2	Al	11:30	11:45	HiRA	"
KZ 51	Cocktail		1.2	Plastic	12:10		HiRA	"
12/21/2017								
KZ 52	Cocktail		1.2	Plastic	12:13		HiRA	"
56								
63	Cocktail		1.2	Plastic	05:10		HiRA	Calibration
64	"		"	"	5:25		"	"
65	"		"	"	5:40		"	"
66	"		"	"	5:56		"	"
67	"		"	"	6:11		"	"
68	"		"	"	6:26		"	"
69	"		"	"	6:45		"	"
70	"		"	"	6:59		"	"
71	"		"	"	7:27	7:56	"	"
72	"		"	"	7:56	8:26	"	"
73	"		"	"	8:27	8:57	"	"
74	"		"	"	8:57	9:00	"	"
75	"		"	"	9:09	9:36	"	"
76	"		"	"	9:39	10:22	"	"
77	"		"	"	10:23		"	"

Run 50 - Zib: reloaded the CsI shapers and fixed the bad CsI crystals found in Run 44.

→ chip boards dropped off?!
Web power supply died and failed to connect to wifi
⟺ No instructions to how to restart.
Finally Genie pulled the plug and restart it. it works

CsI North: 150 Down: 670 South: 545 Or: 1350
CsI North: 160 Down: 630 South: 550 Or: 1300

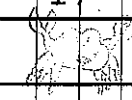
CsI North: 150	Down: 700	South: 570	OR: 1400	(run 73)

Beam running w/ cyclotrons at max rate determined from an high (to avoid causing damage)
North: 160 Down: 700 South: 550 OR: 1350

North: 140 Down: 650 South: 525 OR: 1300

North: 145 Down: 750 South: 550 OR: 1450

Run #	Beam	Energy	Brho	Target	Start time	End time	Detectors	Type
78	160		2.1	Plastic	12:57		Hydra	Calibration
79	160		2.1	Plastic	13:02	13:31	Hydra	Calibration
80	160		2.1	"	13:36		"	"
81	160		2.1	Active target	5:13		Hydra	
82	160		2.1	Active target	6:34		Hydra	Cal
83	160		2.1	Active target	6:58		Hydra	Cal
84	160		2.1	AT	9:32		Hydra	Cal
▷								
91	160	merged data	2.1	AT	12:00	12:10	merged	Data
		Nothing in merged Spectcl						
92	160		2.1	AT	00:19		merged	Data
93	160		2.1	AT	01:11		merged	DATA
94	"		"	"	01:30		"	"
95	"		"	"	01:50		"	"
96	"		"	"	02:16		"	"
97	CRASH IN SPECTCL		"	"	02:55		"	"
98	"		"	"	03:27		"	"
102	EMPTY		"	"	04:44		"	"
103	"		"	"	06:04	6:14	"	"
104	160		2.1	AT	6:20		Merged Hydra	Data
106	"		"	"	7:00	"	"	"



CsI North: 700, Down: 4000 South: 2500 Odd: 6500

740	4k	2.7k	6.6k
700	3.8k	2.4k	6.0k

Run 82

Added 150 ns to AT-wide, 110 ns to AT coinc delay and 110 to VW and NW triggers

Active Target

QDC Channel		Position
0	F	UL
2	E	UR
4	H	LL
6	A	LR

TDC Channels Added

48	Mcs global master
49	Active target UL
50	" " UR
51	" " LL
52	" " LR
53	Hira Master
54	Neutron Wall Master
55	Veto Wall Master

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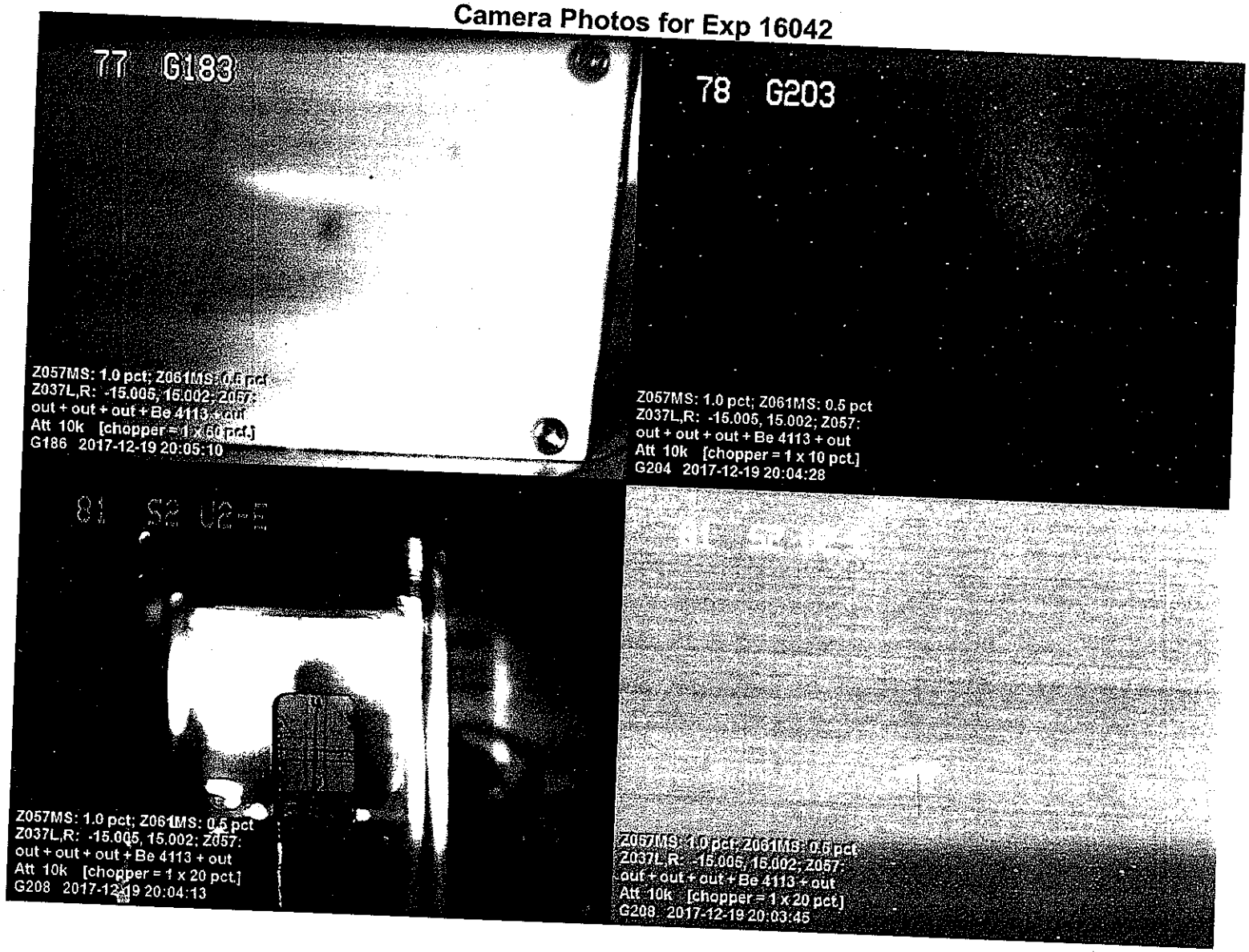
A1900 "Print21Dec17_12h47.txt"  Thursday 12:47:19 2017-12-21  A1900
Moe_258   ***              160 1.2 Tm to G207 production ***
Expt: 16042 "Commissioning of the LCPV Wall" [Tsang, Betty] Line: RPMS [6]
Beam: 16 O 3+  13.06 MeV/nuc (K500) 8+    150 MeV/nuc (K1200) Chpr off
<Att  10k>  ECR, Apertures: ARTEMIS 150.0; 15.0;  7.5 mm RHVBI: 24.1100 kV
K500 a,b:    614 A,    521 A K1200:    720 A,   -214 A RF:  23.83300 MHz
       A1900 Optics: L19S1G_V3b.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  3.66369 Tm
Seg 1:  2.10000 Tm  0.67976 T  3.08941 m    3.08931 m    0.00327 % (2.10007 Tm)
Seg 2:  2.10000 Tm  0.67873 T  3.09382 m    3.09403 m   -0.00699 % (2.09985 Tm)
Seg 3:  2.10000 Tm  0.68148 T  3.08153 m    3.08155 m   -0.00046 % (2.09999 Tm)
Seg 4:  2.10000 Tm  0.67852 T  3.09492 m    3.09498 m   -0.00200 % (2.09996 Tm)
Seg 5:  2.10000 Tm
Seg 6:  2.10000 Tm
Seg 7: -0.00000 Tm
A116DS              0.67640 T  3.10375 m    3.10467 m   -0.02956 %
A132DS             -0.02300 T  91.30435 m   91.30435 m   -0.00000 %
Slits: I181 XC,G,YC,G:   76.19,  84.40; -77.44,  84.58
Z001TL: out, Z013TL: out; Z014TL out
Z015TL: Be 4113, Z016TL out; Z015T[mm]   20.42 ( 20.422 rd) pot   0.04 V
Z030BC Beam Stop: -126.19 mm
Z037L,R:  -15.01,  15.00 mm or   -0.51,    0.51 width=   1.02 %; Z037DC: out
Z057MS: 1.0 pct, Z061MS: 0.5 pct
Z059DC: out, Z062SC: out, Z059TL: out
Z082 XC,G,YG:    0.16, 203.64, 202.05 mm Z082TL: out
Z103DC: out, Z106DC: out, Z107DC_U/_L: out/out
Z104DC-R  -0.003 mm; .IRPOS  0; .STR1 BC400 #052 165um p8
Z105TL: out, Slits: ; PPACs: ; Z107 outlim: Y
Z104 XC,G;YC,G:   -0.99,   5.02;    -1.50,   84.99 mm
G183 Y slits: center  -1.8879 mm, gap  96.2176 mm
G183PP: out; G184DC: out; G185DC: out

MagName  Ref[kG]  BSet[kG]    Ratio     (live)     Set[A]   Read[A] DEVI
Z001DV     0.000    -0.622 -16980.70 -16980.70  -270.0000 -267.548       Z001DV
Z002DH     0.000    -0.410 -10491.83 -11193.33    -1.0000   -0.975  --   Z002DH
Z003DV     0.000     0.962  26255.99  26255.99     2.3306    2.382       Z003DV
Z004QA     1.685     6.174  1.000000  1.000000     4.3143    4.297       Z004QA
Z005QB    -0.414    -1.517  1.000000  1.000000    -1.0584   -1.049       Z005QB
Z008DS     2.492     9.344  1.023528  1.023528    31.4227   31.497       Z008DS
Z011QA    -2.322    -8.508  1.000000  1.000000    -5.9498   -5.883       Z011QA
Z012QB     3.409    12.490  1.000000  1.000000     8.8087    8.765       Z012QB
 ---------------------- Segment 1 ----------------------------------------
Z017TA     3.539     7.876  1.057000  1.057000    20.6555   20.754       Z017TA
Z019TB    -3.322    -7.060  1.010000  1.010000   -18.5775  -18.614       Z019TB
Z021TC     2.407     5.280  1.043000  1.043000    11.0670   11.110       Z021TC
Z026DS     3.226     6.729  0.993282  0.993282    41.2320   40.944       Z026DS
Z031TA     2.926     6.158  1.000000  1.000000    12.9209   13.003       Z031TA
Z033TB    -3.613    -7.602  1.000000  1.000000   -21.9736  -22.032       Z033TB
Z035TC     3.183     6.705  1.000000  1.000000    14.1559   14.223       Z035TC
 ---------------------- Segment 2 ----------------------------------------
Z039TA     3.183     6.705  1.000000  1.000000    14.0353   14.101       Z039TA
Z041TB    -3.562    -7.496  1.000000  1.000000   -21.6584  -21.727       Z041TB
Z043TC     2.924     6.157  1.000000  1.000000    12.8619   12.942       Z043TC
Z048DS    -3.226    -6.819  1.006680  1.006680   -42.6248  -42.529       Z048DS
Z053TA     2.800     5.883  1.000000  1.000000    12.3633   12.331       Z053TA
Z055TB    -3.665    -7.723  1.000000  1.000000   -20.8151  -20.750       Z055TB
Z057TC     3.264     6.960  1.000000  1.000000    65.8212   65.618       Z057TC
 ---------------------- Segment 3 ----------------------------------------
Z062TA     3.264     6.960  1.000000  1.000000    66.5001   66.332       Z062TA
```

Camera Photos for Exp 16042



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A1900 "Print19Dec17_20h11.txt"   Tuesday 20:11:29 2017-12-19  A1900
Moe_258   ***       2H soup Be3526 2.1 Tm to G207 prod ***
Expt: 16042 "Commissioning of the LCPV Wall" [Tsang, Betty] Line: RPMS [6]
Beam: 16 O 3+  13.06 MeV/nuc (K500) 8+    150 MeV/nuc (K1200) Chpr off
<Att   1M>  ECR, Apertures: ARTEMIS 150.0; 15.0;  7.5 mm RHVBI: 24.1100 kV
K500 a,b:    614 A,    521 A K1200:    720 A,   -214 A RF:  23.83300 MHz
       A1900 Optics: L19S1G_V3b.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  3.66369 Tm
Seg 1:  2.10000 Tm  0.67970 T  3.08941 m    3.08959 m   -0.00571 % (2.09988 Tm)
Seg 2:  2.10000 Tm  0.67881 T  3.09382 m    3.09366 m    0.00498 % (2.10010 Tm)
Seg 3:  2.10000 Tm  0.68139 T  3.08153 m    3.08195 m   -0.01365 % (2.09971 Tm)
Seg 4:  2.10000 Tm  0.67850 T  3.09492 m    3.09507 m   -0.00486 % (2.09990 Tm)
Seg 5:  2.10000 Tm
Seg 6:  2.10000 Tm
Seg 7: -0.00000 Tm
A116DS              0.67660 T  3.10375 m    3.10375 m    0.00000 %
A132DS             -0.02300 T  91.30435 m   91.30435 m    0.00000 %
Slits: I181 XC,G,YC,G:   76.24,  84.40; -77.42,  84.53
Z001TL: out, Z013TL: out; Z014TL out
Z015TL: Be 3526, Z016TL out; Z015T[mm]   20.42 ( 20.422 rd) pot   0.04 V
Z030BC Beam Stop: -126.19 mm
Z037L,R:  -15.01,  15.00 mm or   -0.51,    0.51 width=   1.02 %; Z037DC: out
Z057MS: 1.0 pct, Z061MS: 0.5 pct
Z059DC: out, Z062SC: out, Z059TL: out
Z082 XC,G,YG:    0.16, 203.64, 202.05 mm Z082TL: out
Z103DC: out, Z106DC: out, Z107DC_U/_L: out/out
Z104DC-R  -0.003 mm; .IRPOS  0; .STR1 BC400 #052 165um p8
Z105TL: out, Slits: ; PPACs: ; Z107 outlim: Y
Z104 XC,G;YC,G:   -1.00,  89.99;    -1.50,   89.99 mm
G183 Y slits: center  -1.8879 mm, gap  96.2176 mm
G183PP: out; G184DC: out; G185DC: out

MagName  Ref[kG]  BSet[kG]    Ratio     (live)     Set[A]   Read[A] DEVI
Z001DV     0.000    -0.622 -16980.70 -16980.70  -270.0000 -267.548       Z001DV
Z002DH     0.000    -0.428 -11687.41 -11687.41    -1.0441   -0.975       Z002DH
Z003DV     0.000     0.927  25396.81  25310.89     2.2467    2.260 read Z003DV
Z004QA     1.685     6.174  1.000000  1.000000     4.3143    4.322       Z004QA
Z005QB    -0.414    -1.517  1.000000  1.000000    -1.0584   -1.037       Z005QB
Z008DS     2.492     9.344  1.023528  1.023528    31.4227   31.497       Z008DS
Z011QA    -2.322    -8.508  1.000000  1.000000    -5.9498   -5.908       Z011QA
Z012QB     3.409    12.490  1.000000  1.000000     8.8087    8.777       Z012QB
 ------------------------ Segment 1 ------------------------------------------
Z017TA     3.539     7.876  1.057000  1.057000    20.6555   20.754       Z017TA
Z019TB    -3.322    -7.060  1.010000  1.010000   -18.5775  -18.614       Z019TB
Z021TC     2.407     5.280  1.043000  1.043000    11.0670   11.110       Z021TC
Z026DS     3.226     6.724  0.992658  0.992658    41.2057   40.907       Z026DS
Z031TA     2.926     6.158  1.000000  1.000000    12.9209   13.003       Z031TA
Z033TB    -3.613    -7.602  1.000000  1.000000   -21.9736  -22.032       Z033TB
Z035TC     3.183     6.705  1.000000  1.000000    14.1559   14.284       Z035TC
 ------------------------ Segment 2 ------------------------------------------
Z039TA     3.183     6.705  1.000000  1.000000    14.0353   14.101       Z039TA
Z041TB    -3.562    -7.496  1.000000  1.000000   -21.6584  -21.727       Z041TB
Z043TC     2.924     6.157  1.000000  1.000000    12.8619   12.942       Z043TC
Z048DS    -3.226    -6.817  1.006246  1.006246   -42.6060  -42.507       Z048DS
Z053TA     2.800     5.883  1.000000  1.000000    12.3633   12.331       Z053TA
Z055TB    -3.665    -7.723  1.000000  1.000000   -20.8151  -20.811       Z055TB
Z057TC     3.264     6.960  1.000000  1.000000    65.8212   65.618       Z057TC
 ------------------------ Segment 3 ------------------------------------------
Z062TA     3.264     6.960  1.000000  1.000000    66.5001   66.359       Z062TA
```

```
A1900 "Print20Dec17_17h03.txt" Wednesday 17:03:35 2017-12-20  A1900
Moe_258   ***  2H unwedged 0.5% dp/p 1.2 Tm to G207 pr ***
Expt: 16042 "Commissioning of the LCPV Wall" [Tsang, Betty] Line: RPMS [6]
Beam: 16 O 3+  13.06 MeV/nuc (K500) 8+    150 MeV/nuc (K1200) Chpr off
<Att   1k>  ECR, Apertures: ARTEMIS 150.0; 15.0;  7.5 mm RHVBI: 24.1100 kV
K500 a,b:    614 A,    521 A K1200:    720 A,   -214 A RF:  23.83300 MHz
       A1900 Optics: L19S1G_V3b.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  3.66369 Tm
Seg 1:  1.20000 Tm  0.38798 T  3.09269 m    3.09291 m   -0.00716 % (1.19991 Tm)
Seg 2:  1.20000 Tm  0.00000 T  3.09626 m    0.00000 m  100.00000 % (1.19991 Tm)
Seg 3:  1.20000 Tm  0.38909 T  3.08425 m    3.08410 m    0.00465 % (1.20006 Tm)
Seg 4:  1.20000 Tm  0.38738 T  3.09802 m    3.09771 m    0.01022 % (1.20012 Tm)
Seg 5:  1.20000 Tm
Seg 6:  1.20000 Tm
Seg 7: -0.00000 Tm
A116DS              0.38670 T  3.10375 m    3.10318 m    0.01847 %
A132DS             -0.01315 T  91.30435 m   91.25475 m    0.05435 %
Slits: I181 XC,G,YC,G:   76.24,  84.40; -77.44,  84.58
Z001TL: out, Z013TL: out; Z014TL out
Z015TL: Be 3526, Z016TL out; Z015T[mm]   20.42 ( 20.422 rd) pot   0.04 V
Z030BC Beam Stop: -126.19 mm
Z037L,R:  -15.01,  15.00 mm or   -0.51,    0.51 width=   1.02 %; Z037DC: out
Z057MS: 1.0 pct, Z061MS: 0.5 pct
Z059DC: out, Z062SC: out, Z059TL: out
Z082 XC,G,YG:    0.16, 203.64, 202.05 mm Z082TL: out
Z103DC: out, Z106DC: out, Z107DC_U/_L: out/out
Z104DC-R  -0.003 mm; .IRPOS  0; .STR1 BC400 #052 165um p8
Z105TL: out, Slits: ; PPACs: ; Z107 outlim: Y
Z104 XC,G;YC,G:   -0.99,   5.02;    -1.50,   84.99 mm
G183 Y slits: center  -1.8879 mm, gap  96.2176 mm
G183PP: out; G184DC: out; G185DC: out
```

MagName	Ref[kG]	BSet[kG]	Ratio	(live)	Set[A]	Read[A]	DEVI
Z001DV	0.000	-0.622	-16980.70	-16980.70	-270.0000	-267.510	Z001DV
Z002DH	0.000	-0.384	-10491.83	-10491.83	-0.9373	-0.853	Z002DH
Z003DV	0.000	0.962	26255.99	26255.99	2.3306	2.382	Z003DV
Z004QA	1.685	6.174	1.000000	1.000000	4.3143	4.310	Z004QA
Z005QB	-0.414	-1.517	1.000000	1.000000	-1.0584	-1.025	Z005QB
Z008DS	2.492	9.344	1.023528	1.023528	31.4227	31.497	Z008DS
Z011QA	-2.322	-8.508	1.000000	1.000000	-5.9498	-5.883	Z011QA
Z012QB	3.409	12.490	1.000000	1.000000	8.8087	8.765	Z012QB
----------	Segment 1	----------					
Z017TA	3.539	4.490	1.057000	1.057000	11.7958	11.904	Z017TA
Z019TB	-3.322	-4.028	1.010000	1.010000	-10.6022	-10.618	Z019TB
Z021TC	2.407	3.013	1.043000	1.043000	6.2861	6.350	Z021TC
Z026DS	3.226	3.835	0.991905	0.990741	23.4118	23.121	Z026DS
Z031TA	2.926	3.513	1.000000	1.000000	7.2610	7.326	Z031TA
Z033TB	-3.613	-4.337	1.000000	1.000000	-12.6503	-12.633	Z033TB
Z035TC	3.183	3.822	1.000000	1.000000	7.7495	7.815	Z035TC
----------	Segment 2	----------					
Z039TA	3.183	3.822	1.000000	1.000000	7.9372	7.937	Z039TA
Z041TB	-3.562	-4.275	1.000000	1.000000	-12.5008	-12.510	Z041TB
Z043TC	2.924	3.510	1.000000	1.000000	7.3053	7.326	Z043TC
Z048DS	-3.226	-3.898	1.006868	1.006868	-24.2060	-24.161	Z048DS
Z053TA	2.800	3.360	1.000000	1.000000	6.9028	6.899	Z053TA
Z055TB	-3.665	-4.400	1.000000	1.000000	-11.8622	-11.839	Z055TB
Z057TC	3.264	3.927	1.000000	1.000000	37.2435	37.053	Z057TC
----------	Segment 3	----------					
Z062TA	3.264	3.927	1.000000	1.000000	37.3305	37.107	Z062TA

RUN 103: prior to this run we had a crash on the V3PC2.
We restored all the previous configurations but we are not able to connect Spectcl to the online data.

We do see scalers, and we are making triggers
It was neccesary to turn on the bias to the E's after the crash.

h 06:28 We got again the control on Spectcl for HiRA. The incoming data are corrupted (1003 ERROR).

Pulser Ramp

Low: 0.025V – 0.5 — 25 steps — 10 s

High 0.5 – 3.5 — 21 steps — 10 s

Frequency 100 Hz
Width 100 ns
Rise time 100 ns
Fall time 1000 ns

Low Ramp		High Ramp	
0.02	0.38	0.5	3.05
0.04	0.4	0.65	3.2
0.06	0.42	0.8	3.35
0.08	0.44	0.95	3.5
0.1	0.46	1.1	
0.12	0.48	1.25	
0.14	0.50	1.4	
0.16		1.55	
0.18		1.7	
0.2		1.85	
0.22		2.0	
0.24		2.15	
0.26		2.3	
0.28		2.45	
0.3		2.6	
0.32		2.75	
0.34		2.9	
0.36			

New Low 25 points

Same as before but now goes to 0.5

Hira Pulser Calibrations Silicons Fronts via White Pulser

Odd / Even Channels High, Test 3 Chip Boards at a time

Run	Chip Boards	MB	Side	Pulsings Set	Notes
106	2,4,6	1	Fronts	Low	Bad
107	2,4,6	1	Fronts	High	
108	8,10,12	1	Fronts	Low	12 Fronts look okay. 8 Front missed first / Bad Pulser line
109	8,10,12	1	Fronts	High	
110	2,4,6	2	Fronts	Low	Changing Low Strom Bad 0.025 - 0.5 to 0.02-0.5
Changing number of steps in low calibration Strom 21 to 25					
111	2,4,6	2	Fronts	Low	First run using 25 points Readout skip wrote high should be low
112	2,4,6	1	Fronts	Low	
113	8,10,12	1	Fronts	Low	
114	2,4,6	2	Fronts	High	Wrong readout skip should be high
115	8,10,12	2	Fronts	Low	
116	8,10,12	2	Fronts	High	
117	~~1,3,5~~	1	~~Back~~	~~Low~~	Shit
118	1,3,5	1	Back	Low	
119	1,3,5	1	Back	High	
120	7,9,11	1	Back	Low	
121	7,9,11	1	Back	High	

Run	Chip Boards	MUX	Side	Pulsing Ext	Notes
122	1, 3, 5	2	Back	Low	Bad run
123	1, 3, 5	2	Back	Low	Back 8 chips bad
124	1, 3, 5	2	Back	High	bad
125	7, 9, 11	2	Back	Low	Bad
126	7, 9, 11	2	Back	Low	
127	7, 9, 11	2	Back	~~Low~~ High	

CsI Pulser Ramp

128	Shaper/Discriminated	0	
129	SD	1	~~Bad~~
130	SD	2	

SD 0 31 Peaks between 0.1 and 5

Alpha Calibration

Run ~~130~~ 131 Bad

Run 132

Alpha Runs
Before: Run [illegible] 13
After: 132

CsI Pulser: 128, 129, 130

Si Pulser: 107, 109, 111, 112, 113, 114, 115, 116
118, 119, 120, 121, 123, 124, 126, 127

[illegible]
16=

Calibration Runs

Beam	Brho	Target	Runs
Cocktail	2.1	Al	15-22
Cocktail	2.1	CH_2	23-25, 36-41
Cocktail	1.2	Al	42-50
Cocktail	1.2	CH_2	50-52, 63-77
^{16}O	2.1	CH_2	78-86
^{16}O	2.1	Active Target	81-84, 91-96, ~~103, 104~~, 106

CsI 4,5, 0,1

Analysis with chenyang 1/7/17
CsI pulsers
Tele 0 O.K
Tele 1 O.K
Tel 2 2-0 no-signal, other write O.K
Tel 3 O.K
Tel 4 4-0 need to restart, to exc
Tel 5 Same as 4
Tel 6 "
Tel 7 "
Tel 8 fit first 6 points
Tel 9 "
Tel 10 "
Tel 11 "
Tel 12 "

S: pulser 128,
3b31
6b9
7b9

S1 α source 0F31

less data ~~7F21 7F32~~ 7F20 ~ 31

7B0

Wired data 9B15 11,8F31

~~9B30~~ gain 6B

Run ~~133~~ 134: CsI pulser tele 4-7
+0.1 V to +3V in 21 steps

Run ~~134~~ 135: CsI pulser tele 8-11
+0.1 V to +3V in 21 steps

Removed ATLAS from Readout

Run 136: CsI pulser tele 0-3
0.1V to 5V in 31 steps

Run ~~136~~ 137: CsI Pulser tele 4-7
0.1 V to 3V in 21 steps

Run 138: CsI Pulser tele 8-11
0.1V to 3V in 21 steps

Before run 136

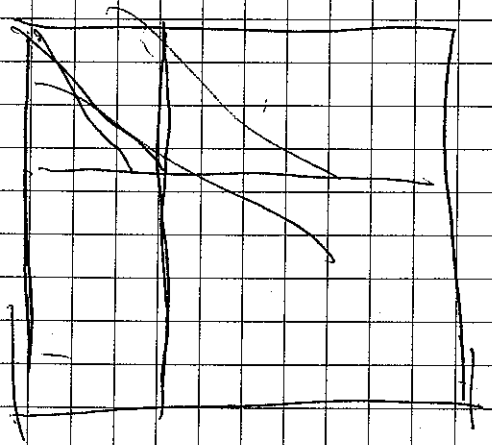
DaQconfig: timestamp, hira, adc1, adc2, tdc1 (slot 4), AtQDC

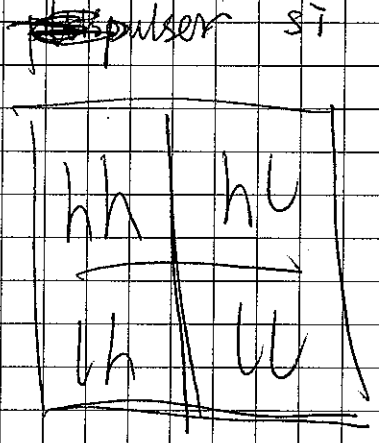
After run 136

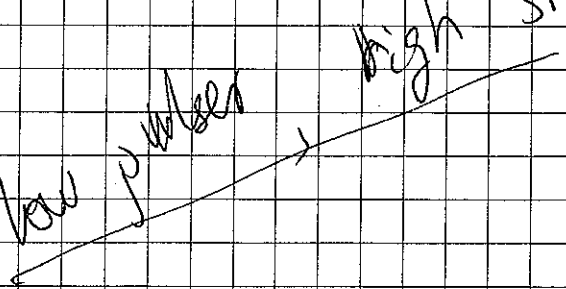
Dagconfig: timestamp, hira, adc1, adc2, tdc1 (slot 7)

① Run 128 is different with Run 136, ~~by~~ different type

② SpecTcl is different with ROOT file for Run 128







Si Pulser Peds
Low: 0.025V - 0.5V 25 Step   Back 6, 7, 3
                                         Front 9, 5
High: 0.5V - 3.5V 25 Steps

~~Run 139: Back 6, 7, 3 High~~
Junk

Run 140: Back 6, 7, 3, High

~~Run 141: Back 6, 7, 3 Low (light checked on pulsers) Bad~~

Run 141: Back 6, 7, 3 Low (bad Pulser not working)

Run 142: Back 6, 7, 3 Low

~~Run 143: Front 5, 9 High~~

Run 144: Front 5, 9 high bad

Run 145: Front 5, 9 high bad

Run 146: Front 5, 9 high

Run 147: Front 5, 9 Low

Run 148: Back 6, 7, 3 high

Run 149: Back 6, 7, 3 Low

After chipboard change.

good now =

still bad =

Run 150: Alpha (cal. alpha inside mball) bad

Run 151: Alpha (cal. alpha inside mball)

Run 152: Junk

Pulser Runs Silicon

High: ~~0.02~~ V – 3.5V 28 steps

Run 153 Alpha

High Pulser range 0.02V – 3.76V 39 steps 10 seconds

Run 154 Si Pulser Cal Fronts 0,1,2 - Full Range MB1

Run 155 Si Pulser Cal Fronts 3,4,5, Full Range MB1

Run 156 Si Pulser Cal Fronts 6,7,8 Full Range MB2

Run 157 " " 9,10,11 Full Range MB2 Back

Run 158 " " 9,10,11 Full Range MB2

Fine Ramp Fronts

Run 159 Si Pulser Cal Fronts 0,1,2 Fine Range MB1

Fine Range 0.02V – 0.2V 18 steps 10 seconds

Run 160 Si Pulser Cal Fronts 3,4,5 Fine Range MB1

Run 161 Si Pulser Cal Fronts 6,7,8 Fine Range MB2

Run 162 Si Pulser Cal Fronts 9,10,11 Fine Range MB2

Run 163 Si Pulser Cal Backs 0,1,2 Full Range MB1

Run 164 Si Pulser Cal Backs 3,4,5 Full Range MB1

Run 165 Si Pulser Cal Backs 6,7,8 Full Range MB2

Run 166 Si Pulser Cal Backs 9,10,11 Full Range MB2

Run 167 Si Pulser Cal Backs 0,1,2 Fine Range MB1

Run 168 " " 3,4,5 Fine Range MB1

Run 169 " " 6,7,8 Fine Range MB2

Run 170 " " 9,10,11 Fine Range MB2

Pulser S.

Run 171 0.001-0.2 V 21 Steps Events 9,1,2 MB1
Run 172 Junk
Run 173 0.001-0.091 31 Steps " "
Run 174 0.001-0.099 Steps 21 " "
Run 175 0.001-0.091 Steps 11 " "
Run 176 0.001-0.099 Steps 15 " "

Al target 16 ~~mg~~ mg/cm²

? CH₂ target 1 mm

177: CsI Cosmics threshold set 35

178: CsI fine pulser thresholds 35 43 steps
Shaper 1 43 steps, 5 seconds
0.025V-

~~179: CsI fine pulser, thresholds 35, 43 steps~~
~~shaper 1 10 seconds~~
~~0.025V-1.033V~~ Junk

T1 (180:) Same as 179 CsI Fine Pulser thresholds 35, 43 steps
Shaper 1, 10 seconds 0.025-1.033V

~~181: CsI Fine Pulser, thresholds 35, 43 Steps~~
~~Shaper 2 10 seconds 0.025V-1.033V~~ Junk

T2 (182) Same as 181 CsI fine pulser, thresholds 35, 43 Steps
Shaper 2, 10 seconds 0.025V-1.033V

~~183 CsT Fine Pulser, thresholds 35, 43 step 2nd 14 of 18~~
~~Shaper 3 10 seconds 0.025V-1.033V~~ Junk

~~184~~: Junk

TB (188) Same as 183 CsI Fine Pulser. Threshold 35
48 steps, Shaper 3, 10 seconds 0.025V-1.033V

186: Long Alpha run

Silicon Pulsers Fine 0.001 V - 0.485 45 steps, 10 seconds

X Run 187. Silicon Pulser Cal Events 0,1,2,3 Fine range Dead

Run 188 Same as 187

F0-3 Run (189) Silicon Pulser Cal Events 4,5,6,7 Fine range

F4-7 Run (190) Silicon Pulser Cal Events 0,1,2,3 Fine range
21 steps 0.001V-0.181V 8 seconds

F8-11 Run 191 Silicon Pulser Cal Events 4,5,6,7 Fine range

Run ~~192~~ Silicon Pulser Cal Events 8,9,10,11 Fine range

B0-3 Run (193) Silicon Pulser Cal Backs 0,1,2,3 Fine Range Back

Run 194 Same as 193

B4-7 Run (195) Silicon Pulser Cal back 4,5,6,7 Fine Range

B8-11 Run (196) Silicon Pulser Cal back 8,9,10,11 Fine range

~~Run~~

Run 197 CsI pedistal Run

Run 32 | 14030 to 15190

CsI Radistal

Tele	CsI 0	CsI 1	CsI 2	CsI 3
0	26.5	63.5	75.5	27.5
1	87.5	72.5	89.5	84.5
2	52.5	87.5	54.5	82.5
3	57.5	84.5	77.5	60.5
4	92.5	58.5	86.5	79.5
5	70.5	71.5	60	76
6	55	55	62	70
7	80	71	88	64
8	83	68	94	94
9	96	78	101	95
10	86	90	106	83
11	111	93	113	88

ROOT files folder /mnt/analysis/e16042/rootfilesHiRA
Raw evt files folder /mnt/misc/daqevents-ro/e14030/experiment
Unpack codes folder /projects/e16042/ribbitHiRA

Type	Run #	Beam	target	brho	upack	comments
U238	13	source				get resolution (?)
Data	15-22	cocktail	Al	2.1		
	23-25	cocktail	CH (1mm)	2.1		
	36-41	cocktail	CH (1mm)	2.1		
	42-50	cocktail	Al	1.2		
	50-52	cocktail	CH (1mm)	1.2		
	63-77	cocktail	CH (1mm)	1.2		
	78-80	16O	CH (1mm)	2.1		not enough statistics (?)
	81-84	16O	Active tgt	2.1		not enough statistics
	91-96	16O	Active tgt	2.1		not enough statistics
U238	132	source				similar to run 13
	~~150~~ 186	source				Data very noisy. Replaced 5 chipboards
						T3BE, T5F0, T6B0, T7B0, T9F0,

Need pulser runs for all Si and CsI for linearity, offsets and thresholds
Problems: power supply broken

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EIN: 208066748

CERTIFICATE of ANALYSIS

CUSTOMER:
St Science Co., Ltd.
Attn: Mr. H. Kawanishi
473-3,Hongo, Sugito-machi
Kitakatsushika-gun, Saitama 345-0023
Japan
Tel: +81-480-37-1555

CERTIFICATE NO.: 50-01-112-1093

CUSTOMER ORDER NO.: ISFX-32-19

The description, isotopic distribution and chemical admixtures relating to the above referenced order number are certified to be as follow:

Description

ISOTOPE	Sn-112
ENRICHMENT	99.60%
ELEMENT WEIGHT	500 mg
FORM	Metal

Isotopic Distribution

ISOTOPE	Sn-112	Sn-114	Sn-115	Sn-116	Sn-117	Sn-118	Sn-119	Sn-120	Sn-122	Sn-124
CONTENT (%)	99.6	0.3	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Chemical Admixtures

ELEMENT	Fe	Al	Si	Cr	Ni	Cu	Pb	Sb	Ga	In
CONTENT (ppm)	30	30	60	30	<10	60	20	60	<10	<10

ELEMENT	Zn	Mg
CONTENT (ppm)	40	<10

ISOFLEX USA

September 10, 2012
Date

Teck Hing Teo
Operations Manager

120910-06 - CoA - Sn-112.wpd

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CERTIFICATE NO.: 4899

CUSTOMER ORDER NO.: ISFX-33-03

The description, isotopic distribution and chemical admixtures relating to the above referenced order number are certified to be as follow:

Description

ISOTOPE	Sn-124
ENRICHMENT	99.90(±0.01)%
ELEMENT WEIGHT	500 mg
FORM	Metal

2nd (Nafer ore)

Isotopic Distribution

ISOTOPE	Sn-112	Sn-114	Sn-115	Sn-116	Sn-117	Sn-118	Sn-119	Sn-120	Sn-122	Sn-124
CONTENT (%)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.10±0.01	99.90±0.01%

Chemical Admixtures

ELEMENT	Ag	Be	Mn	Al	Ca	Co	Cr	Pb	Ti	Pd
CONTENT (ppm)	<0.5	<0.5	<0.5	3	<20	<5	<5	<5	<5	<5

ELEMENT	Mo	V	Zn	Zr	Mg	Ni	Ti	Bi	In	Ga
CONTENT (ppm)	<5	<5	<5	<5	<5	<5	<5	<2	<2	<2

ELEMENT	Cd	Au	La	Si	Ba	As	Ta	Te	W	Cu
CONTENT (ppm)	<2	<20	<20	<20	<20	<50	<50	<50	<50	25

ELEMENT	Fe
CONTENT (ppm)	30

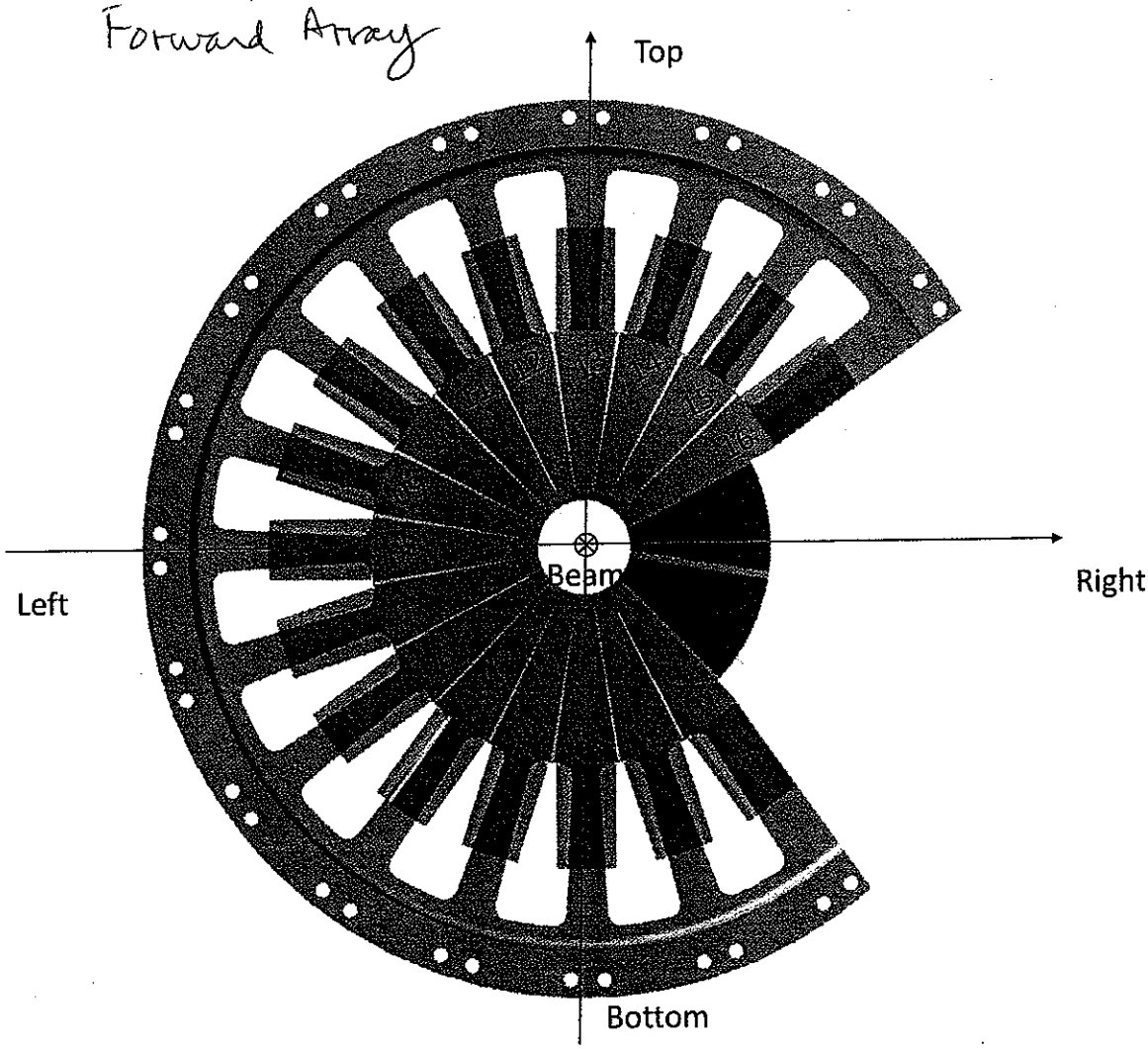
ISOFLEX USA

March 1, 2013
Date

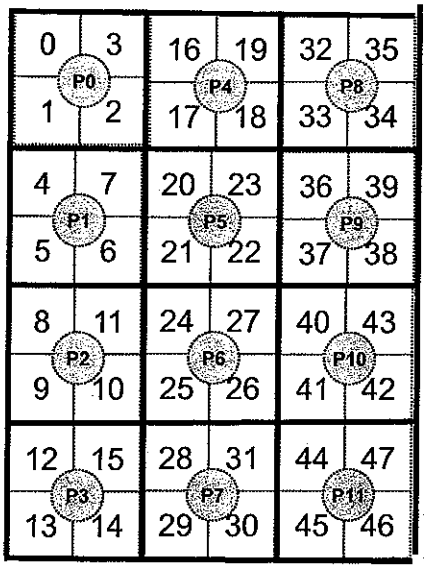
Lori Mathews
President

130301-04 - CoA - Sn-124.wpd

Forward Array

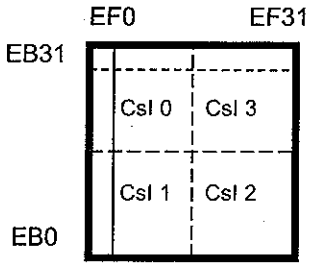


Tower 1	Tower 2	Tower 3
U5 **P0** MB1 E:2942-23 =1537 1,2/1,2 ☐ U = 180 [V] I = [μA]	U13 **P4** MB1 E:3111-3 =1517 9,10/9,10 ☐ U = 400 [V] I = [μA]	U1 **P8** MB2 E:2883-11 =1537 5,6/5,6 ☐ U = 310 [V] I = 1.64 [μA]
U9 **P1** MB1 E:3168-7 =1521 3,4/3,4 ☐ U = 380 [V] I = [μA]	U8 **P5** MB1 E:2503-15 =1512 11,12/11,12 ☐ U = 250 [V] I = 4.4 [μA]	U7 **P9** MB2 E:2883-10 =1536 7,8/7,8 ☐ U = 340 [V] I = [μA]
U15 **P2** MB1 E:2572-3 =1500 5,6/5,6 ☐ U = 220 [V] I = 1.8 [μA]	U12 **P6** MB2 E:2344-03 =1491 1,2/1,2 ☐ U = 350 [V] I = 1.71 [μA]	U10 **P10** MB2 E:2572-4 =1471 9,10/9,10 ☐ U = 265 [V] I = 2.08 [μA]
U6 **P3** MB1 E:2085-8 =1496 7,8/7,8 ☐ U = 290 [V] I = 1.24 [μA]	U14 **P7** MB2 E:2113-5 =1460 3,4/3,4 ☐ U = 450 [V] I = 1.8 [μA]	U11 **P11** MB2 E:2344-05 =1491 11,12/11,12 ☐ U = 350 [V] I = 2.02 [μA]



CB/slot

☐ E Front



E14030 &15190

Setup prepared 6 February 2018:

- Viewer
- Blank
- 58Ni @ 5.0 mg/cm2
- 64Ni @ 5.3 mg/cm2
- 124Sn @ 6.47 mg/cm2
- 112Sn @ 6.1 mg/cm2
- CH2 @ 10 mg/cm2

element	isotope	E_Ca40 (MeV/u)	Eloss at middle of target (MeV)
			5 mg/cm^2 (AN
Ni	58	140	4.1 (MeV)
		50	8.6
			5.3 mg/cm^2 (C
Ni	64	140	3.9
		50	8.1
			6.47mg/cm^2
Sn	124	140	4.2
		50	8.4
			6.09mg/cm^2
Sn	112	140	4.3
		50	8.8

Run # Beam/target energy

HiRA downscale : X1

Scribe Name Betty			**others** Zibi, Sean, Bill, Kuan, Genie, Wen				
Run # 2007		**Date** 3/9/18		**Start** 03:26		**Stop**	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)** ~~39~~		140	50	~~35~~ 39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	~~112Sn(6.1)~~	124Sn(6.5)	CH2(10u)
Trigger	singles	coincidence		fast clears			
FA	On/Off	**Microball**	off but might	multiplicity			
NW HV file		Co60	15 MeV	25 MeV	may be !		
Shadow Bar		A	B	C	D	none	
Live Time	?	**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open) O.K.						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						
* 40Ca + 124Sn.							

Beamdump Current:

Scribe Name			others				
Run # 2008		Date 2/9/18		Start 3:43		Stop	
Type	(Data)	(calib)	debug	alpha	~~pulser~~	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		Energy (MeV/u)		140	50	~~35~~ (39)	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	112Sn(6.1)	124Sn(6.5)	(CH2(10u))
Trigger	(singles)	coincidence		fast clears			
FA	(On)/Off	Microball	~~off~~ on not in trig	multiplicity			
NW HV file	last trig	Co60	15 MeV	(25 MeV)	Mabe		
Shadow Bar		(A)	(B)	(C)	(D)	none	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Run 2009 is a continuation of 2008

Stop @ 4:00 AM.

CsI thresholds very high, stop to lower thresholds,

What is the ~~[illegible]~~ units of the calibrated E

try to understand the threshold without success

Run 2010 same as 2008 & 2009

Run 2011 Same as 2008-2010

CsI gain 130 for all

Play with Cs2 gain

Set Cs2 gain to 200

Run 2012: Same as 2008-2011, CsI gain raised to 200
Junk

Scribe Name Betty			**others** Sean, Jenie, Bill				
Run # 2013		**Date** 2/9/18		**Start** 5:03		**Stop**	
Type	(Data)	(calib)	debug	alpha	pulser	source	junk
DAQ	(HiRA) (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		**Energy (MeV/u)**		140	50	~~35~~ 39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	112Sn(6.1)	124Sn(6.5)	(CH2(10u))
Trigger	~~singles~~ HiRA	coincidence		fast clears			
FA ~~On/Off~~		**Microball** ~~off~~		~~multiplicity~~			
NW HV file		Co60	15 MeV	(25 MeV)	?		
Shadow Bar		(A)	(B)	(C)	(D)	none	
Live Time		master		clears		**CsI rates**	06:30 ↓
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	**Experiments 14030A and 15190A**						

Set Cs2 gain to 200

Run 2014: Same as 2013

Run 2015: Same as 2013

Run 2016: Same as 2013

Run 2017: Same as 2013

Run 2018: Same as 2013

Run 2019: Same as 2013, beam intensity cut by factor of 3

Run 2020: Same as 2019

Run 2021: Same as 2019 beam intensity cut by ~~75~~ Factor of 3

Run 2022: Same as 2019

Run 2023: Same as 2019

07:13: Ron Fox pointed out strangeness in timestamp dNf spectrum (See next page)
1) Main coincidence peak is ~6 clock ticks away from 0
2) Large artifact to the right of main peak (~20% of total counts)
What is the clock frequency for timestamp? Update: fixed (see next page)

Run 2024: Same as 2019

Run 2025: same as 2019

Run 2026: Same as 2019

Run 2027: same as 2019

Run 2028: Same as 2019

Run 2029: same as 2019

Run 2030: same as 2019

Run 2031: Same as 2019

Run 2032: Same as 2019

Run 2033: Same as 2019

Run 2034: Same as 2019

Run 2035: Same as 2019

Run 2036: Same as 2019

42

		Target			
N-bkg Test	2037	CH_2	NW rate	24.5 kHz	w/ beam
			NW rate	22 kHz	no beam
39 MeV/u	2038	^{124}Sn	NW rate	25 kHz	w/ beam
			NW rate	22 kHz	w/o beam

* TURN OFF ZERO-SUPPRESSION HiRA ADC *

2039 Test w/ no pedestals

140 MeV/u	w/ beam	31 k	($Sn target)
N-bckg test	w/o beam	22k	

Change to 140 MeV/u, ^{124}Sn target

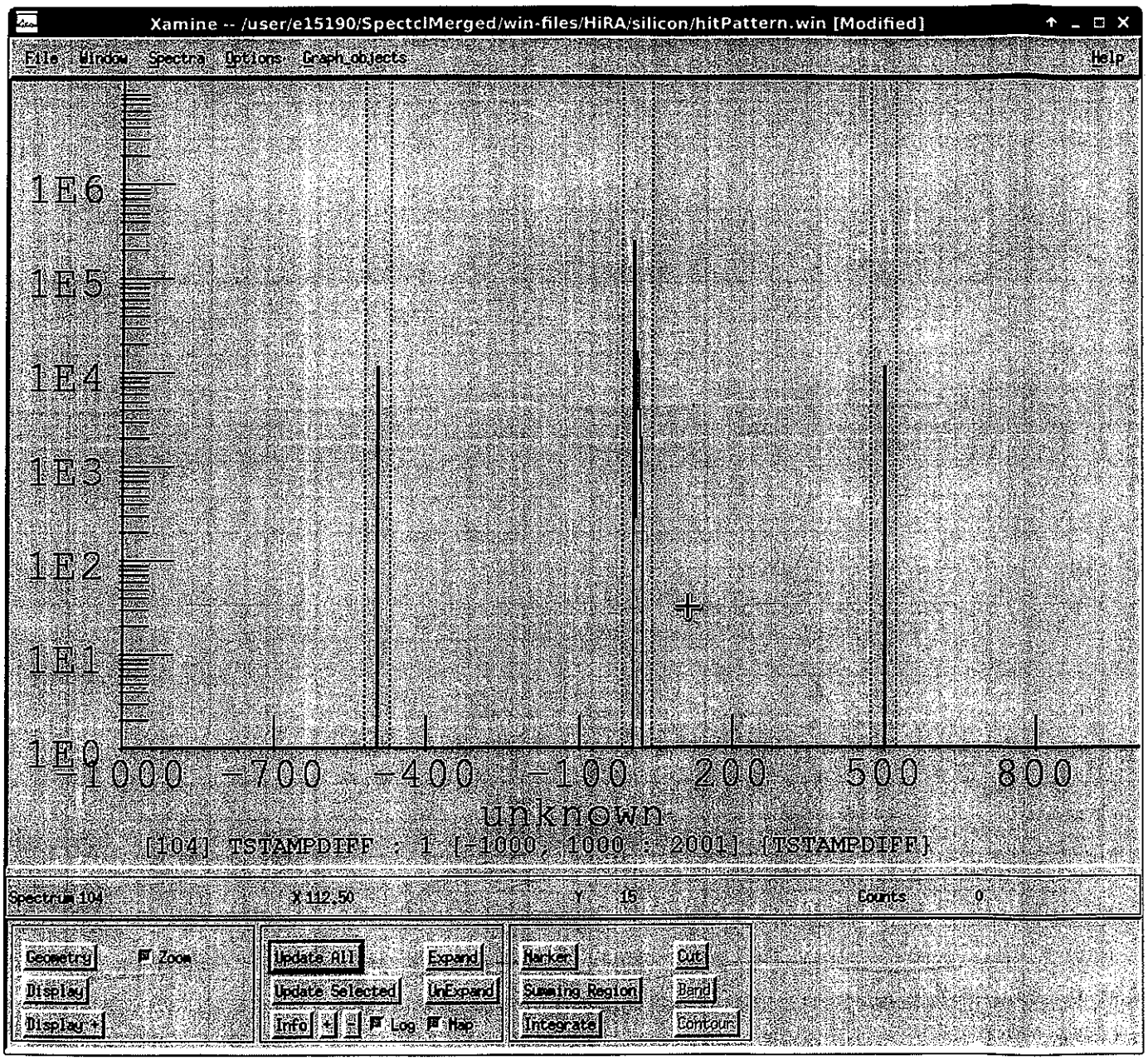
Scribe Name Juan			others Kyle, Beth, Bill, Zibi, Won, Ohm				
Run # 2040		Date 2/9/18		Start 11:52		Stop 12:04	
Type	(Data)	(calib)	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	112Sn(6.1)	(124Sn(6.5))	CH2(10u)
Trigger	(singles HiRA)	coincidence		fast clears			
FA	(On)/Off	Microball	off	multiplicity			
NW HV file		Co60	15 MeV	(25 MeV)			
Shadow Bar		(A)	(B)	(C)	(D)	none	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						
Run before return to check N-bkgd and CsI dynamic range							

Run 2041: same as 2040

Run 2042: same as 2040

Run 2043: same as 2040

2/9/18



Update: This issue resolved by fixing latch (from XLM complete to Master trigger)

Run 2044: same as 2040

N-bkgd test

We asked Tom to increase beam by factor of 4 to test neutron background.

w/ beam 60 k

w/o beam 22 k

So the difference is 38k. Before (w/ lower beam rate) the difference was 9k, which makes sense. Before ~~deadtime~~ live time was about 82%, now it is 72%.

Machine spanked ~

ROOT files folder /mnt/analysis/e15190/rootfilesMerged
Raw evt files folder /mnt/misc/daqevents-ro/e15190/experiment
Unpack codes folder /projects/e15190/ribbitMerged

Type	Run #	Ca40 Bean	target	brho	upack	comments	
U238		source					
Data	2008-2012	39 MeV	CH2			CsI gain=130	
	2013-2036	39 MeV				CsI gain=200	
	2040-2044	140 MeV	124Sn			CsI gain=200	

Source 2045-2047 Amba Source

Run 2048: Neutron Wall Cosmics. Towards the end of the run the microball was replaced as the trigger

The following channels were added to the HiRA TDC

48 Global Master
49 NW DS trig
50 μBall + HiRA
51 μBall + NW
52 DS HiRA
53 HiRA Live Master
54 Empty

SS FA OR

During Feb 9 evening: NWTDC ref channel changed from 96 to 404
VWTDC ref channel changed from 1 to 8

Run 2053 Cosmic NW Trigger run No Downscale

Run 2054 Cosmics NW Trigger, no downscale

Run 2055 Cosmics

→ May be Junk!! Getting Error, data Stream bad?

Run 2056 First Beam since beam loss, no Microball Coin.
This run is a test

Run 2057 Same as 2056

Run 2058 " "

Run 2059 " "

Run 2060 " "

Run 2061 " "

Run 2062 " "

Run 2063 " "

Run 2064 " "

Run 2065: Data Stream problem fixed, target Sn124
Hitting something that is not target, target frame?
Collimator?

Run 2070 HV triggers μB·HiRA μB·NW target = ^{124}Sn
HiRA dnsc = 100
μBall dnsc = 500 target in

I_{Beam} = 16 epA

HiRA - μB = 200 Hz
HiRA = 1.3 kHz
μBall => 440 Hz
NW·μB = 70-80 Hz
} live

After new blocker

no tgt   Full beam int   50 pna ~ 1 enA   with 10k atten

=> actual beam I = 3.1x10^7 /s

29k NW   scaler raw
27k HiRA   Scaler raw

w/target   29k NW
27k HiRA   CsI

Open gate valve to chamber

Run 2076 ^{124}Sn target   50 pna x 1x10^-4 atten = 3.1x10^7/s

CsI Rate = 1.6 kHz
NW Rate = 14 kHz
μB rate = 1kHz

HiRA @ GT   1.3 kHz
NW @ GT   14 kHz
MB @ GT   300 Hz
μB OR   900 Hz

Run 2077 ^{124}Sn target   factor 1000 Attenuation   3x10^8 particles/s

CsI Rate: 17 kHz
NW Rate: 80 kHz
MBall: 12k Hz

HiRA @ GT = 10 kHz
NW @ " = 50 kHz
μB @ GT = 3kHz
MB·HiRA = 2kHz
μB·NW = 300Hz   ← not connected right

Terminal

File Edit View Terminal Tabs Help

```
Timestamp:    368895135
SourceID:     0
Barrier Type: 0
03c4 0000 e49f 15fc 0000 0000 0000 0000
0342 0000 0000 0000 0342 0000 001e 0000
0014 0000 e49f 15fc 0000 0000 0000 0000
0000 0000 0192 0000 0000 e49f 15fc 0000
0000 1ff3 0008 0000 0000 0000 0000 0000
0000 0000 038c 00b  2ff3 0008 0000 0000
0000 0000 0000 0000 0000 006e 000  000
2a00 6047 2800 605a 2810 6043 2801 6038
2811 6047 2802 6054 2812 6019 2803 604e
2813 6053 2804 6044 2814 6044 2805 6044
2815 6038 2806 6038 2816 6051 2807 6049
2817 6032 2808 6034 2818 6054 2809 6034
2819 6033 280a 603b 281a 6050 280b 6043
281b 6038 280c 604e 281c 6050 280d 6045
281d 604a 280e 6055 281e 6038 280f 603d
281f 9871 2c0  ffff ffff 000 3200 605b
3000 6055 3010 606b 3001 604b 3011 605c
3002 6058 3012 605c 3003 604c 3013 605d
3004 605d 3014 604c 3005 6056 3015 6063
3006 6063 3016 605d 3007 604e 3017 6053
3008 6067 3018 6057 3009 6058 3019 6066
300a 6068 301a 604f 300b 6058 301b 606d
300c 6064 301c 605c 300d 604f 301d 606e
300e 6057 301e 6055 300f 604b 301f 9871
340  ffff ffff 0007 4000 1742 01a0 1876
0180 cc94 8c59 00a7 8000 ffff ffff ffff
ffff ffff ffff ffff ffff ffff ffff ffff
ffff ffff ffff 2000 7a00 0fff 7800 0ffe
7810 0ffb 7801 0ffd 7811 0ffd 7802 0ffc
7812 0ffc 7803 0ffd 7813 0fff 7804 0ffe
7814 0ffe 7805 0ffe 7815 0ffd 7806 0ffe
7816 0ffc 7807 0fff 7817 0ffe 7808 0ffd
7818 0ffb 7809 0ffd 7819 0ffd 780a 0ffc
781a 0ffc 780b 0ffc 781b 0fff 780c 0ffc
781c 0ffd 780d 0ffd 781d 0ffc 780e 0ffc
781e 0ffb 780f 0ffc 781f 9871 7c08 ffff
ffff 2000 8200 0005 8000 0004 8010 0005
8001 0002 8011 0003 8002 0003 8012 0003
8003 0002 8013 0004 8004 0003 8014 0004
8005 0003 8015 0002 8006 0002 8016 0003
8007 0003 8017 0004 8008 0002 8018 0003
8009 0002 8019 0003 800a 0003 801a 0003
800b 0002 801b 0003 800c 0002 801c 0004
800d 0003 801d 0001 800e 0002 801e 0003
800f 0003 801f 9871 8408 ffff ffff 2000
8a00 0008 8800 0007 8810 0005 8801 0005
8811 0005 8802
8813 0005 8804
```

First part Time Stamp

1ff3 Motherboard 1

(Slot Board) (Pos in VME)

2ff3 Motherboard 2

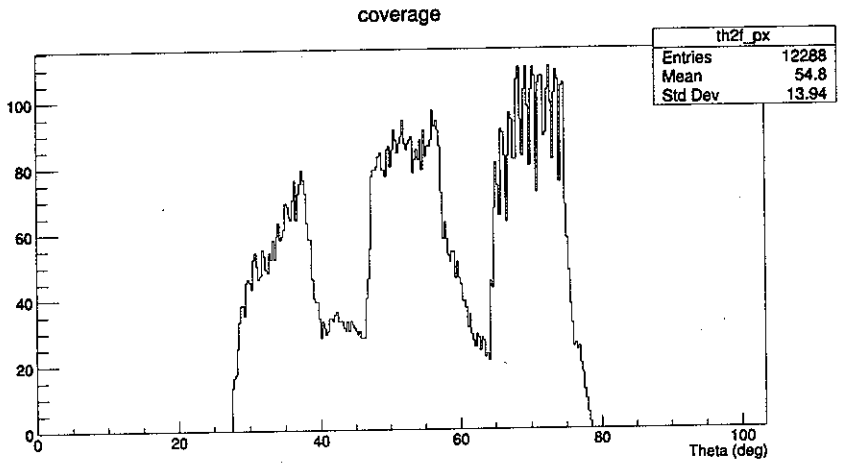
2000 Start of CST ADC

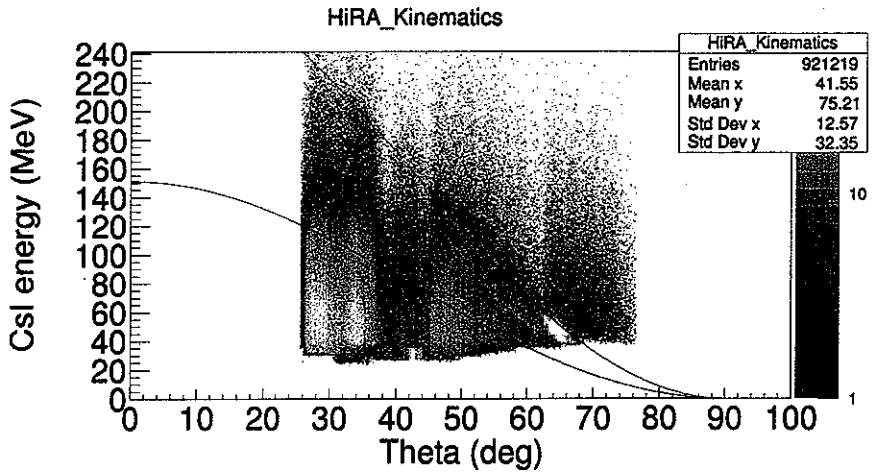
0007 TDC

Microball ADC

2/11/18 2:50 AM

- Inserted 1 inch thick Collimator in setup
- Multiplexer #7 (S2 or dE) ch's not working





File Edit View History Bookmarks Tools Help

control | iCS2

35.9.56.240/en/control#&nav.sidebarnavi.en/control/0-1000/0

iCS2 iCScontrol iCSconfig

Devices

Ch. folders

Ch. profiles

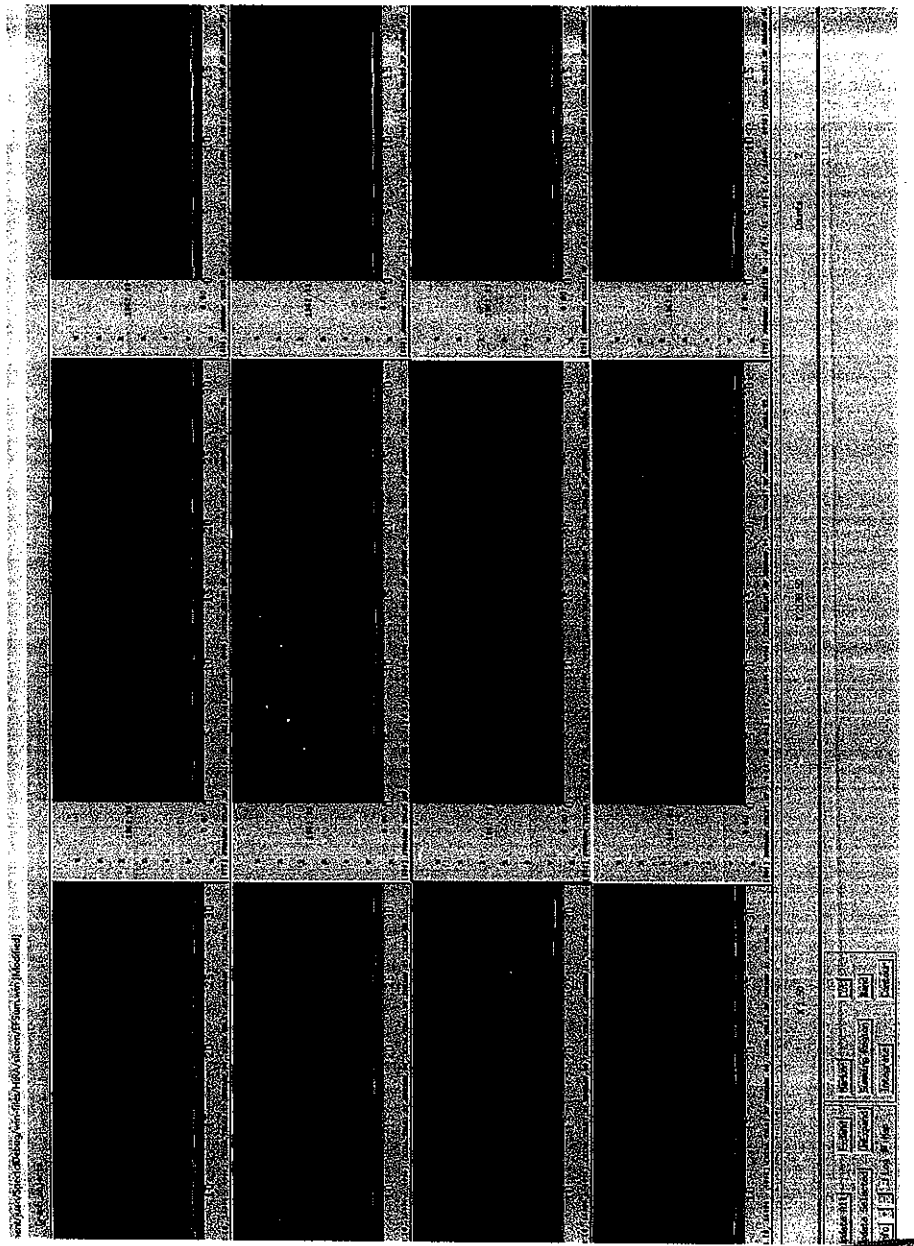
Channel profiles can be used to store and restore the channel status (On/off, Vset, Iset, ...). Check channels and click star icon in channel list.
Note: Depending on the choosen device not visible channels can be changed by application of a profile.

available profiles

HIRA10 (12 ch)

apply delete add

line	addr	ch	power	Vset
			OFF ON	
0	0	0	ON	80.000V
0	0	1	ON	280.000V
0	0	2	ON	120.000V
0	0	3	ON	150.000V
0	0	4	ON	300.000V
0	0	5	ON	150.000V
0	0	6	OFF	0.000V
0	0	7	ON	250.000V
0	0	8	ON	350.000V
0	0	9	ON	210.000V
0	0	10	ON	240.000V
0	0	11	ON	185.000V
0	0	12	ON	250.000V
0	0	13	OFF	0.000V
0	0	14	OFF	0.000V
0	0	15	OFF	0.000V
0	0	16	OFF	0.000V
0	0	17	OFF	0.000V
0	0	18	OFF	0.000V



unknown device

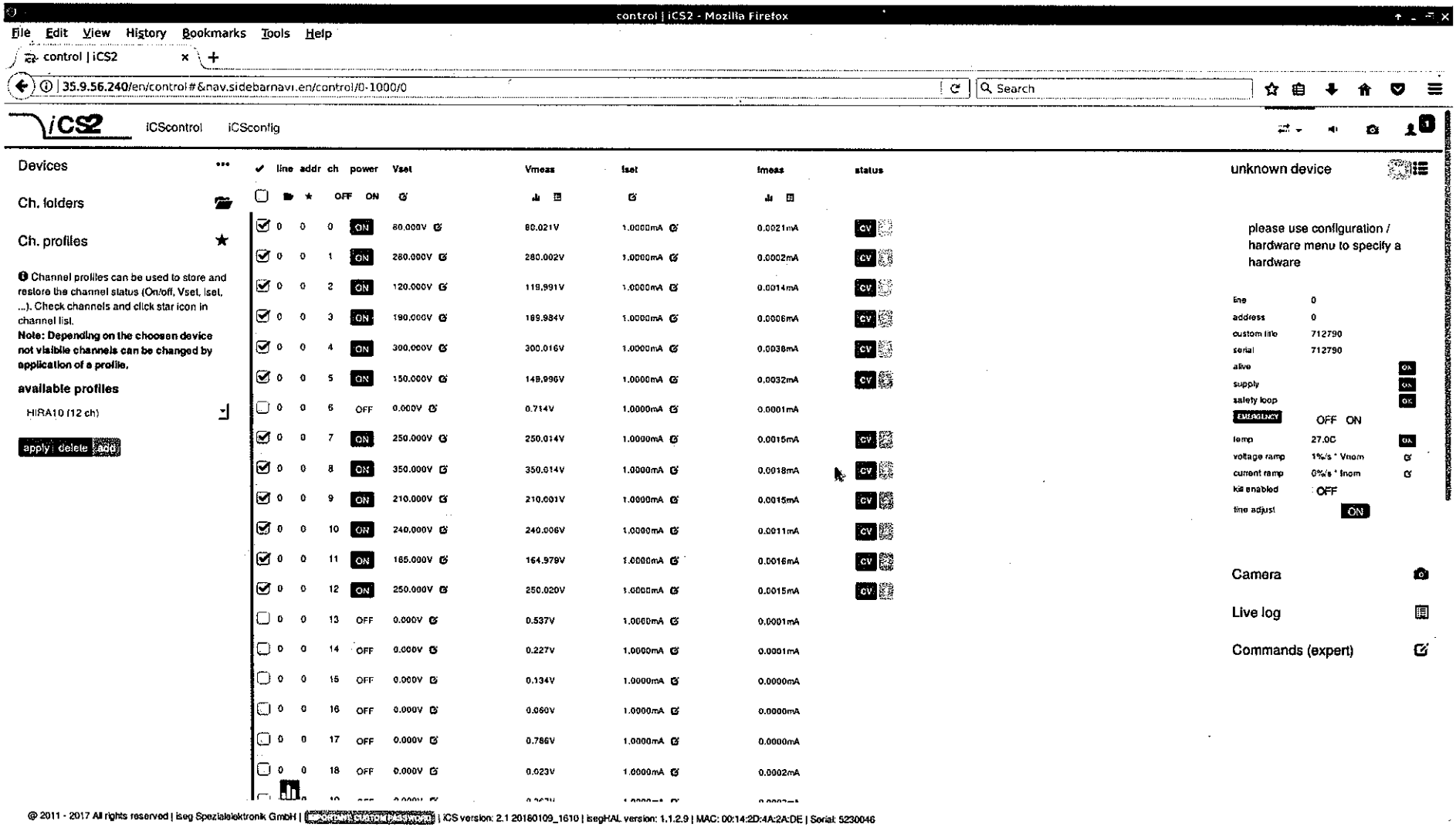
please use configuration / hardware menu to specify a hardware

line	0
address	0
custom title	712790
serial	712790
alive	OK
supply	OK
safety loop	OK
EMERGENCY	OFF ON
temp	27.0C OK
voltage ramp	1%/s * Vnom
current ramp	0%/s * Inom
kill enabled	OFF
line adjust	ON

Camera

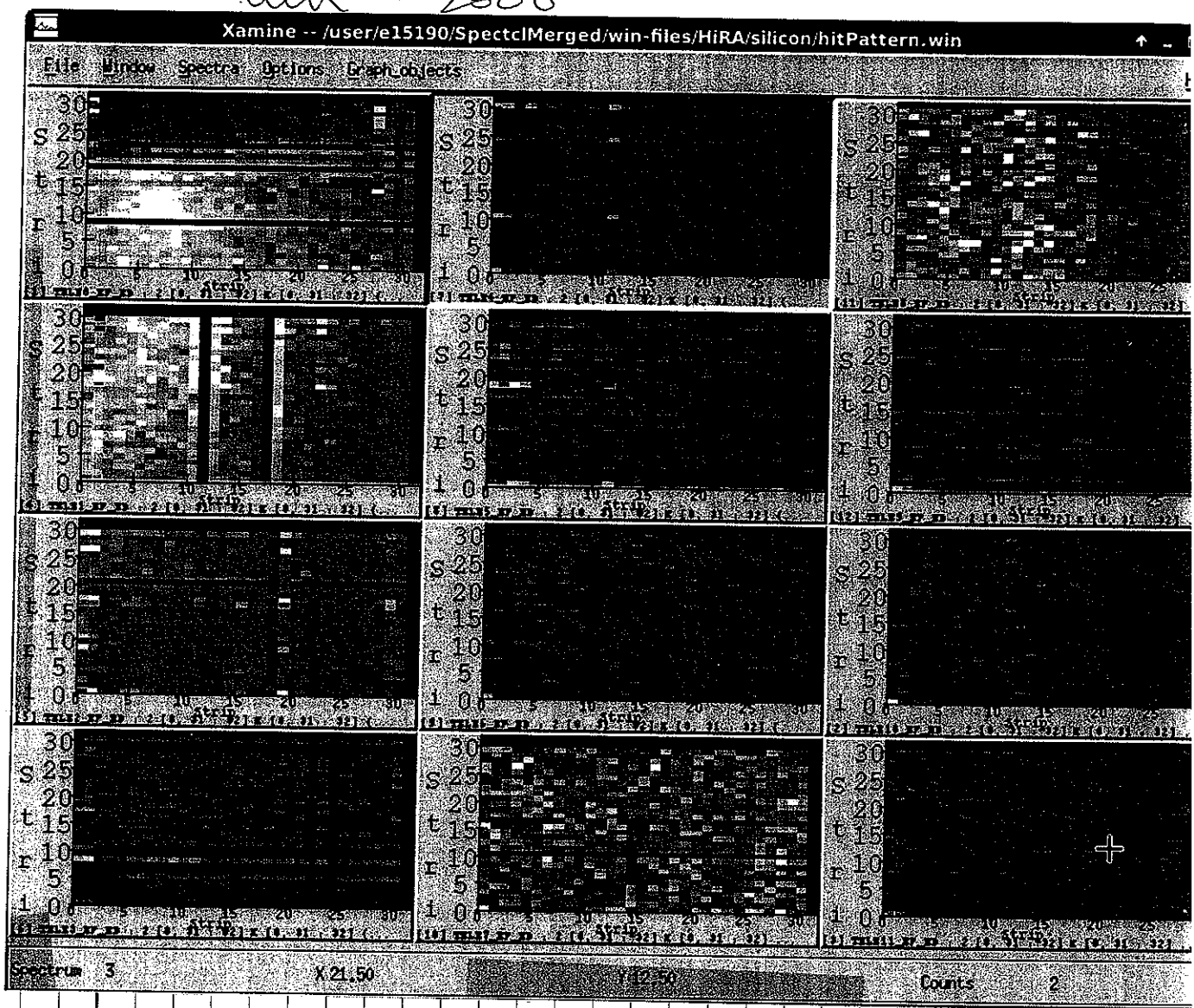
Live log

Commands (expert)


control | iCS2 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
control | iCS2
35.9.56.240/en/control/#&nav.sidebarnavi.en/control/0-1000/0
Search
iCS2
iCScontrol
iCSconfig
Devices
Ch. folders
Ch. profiles
Channel profiles can be used to store and restore the channel status (On/off, Vset, Iset, ...). Check channels and click star icon in channel list.
Note: Depending on the choosen device not visible channels can be changed by application of a profile.
available profiles
HIRA10 (12 ch)
apply delete add
line addr ch power Vset Vmeas Iset Imeas status
OFF ON
0 0 0 ON 80.000V 80.021V 1.0000mA 0.0021mA CV
0 0 1 ON 280.000V 280.002V 1.0000mA 0.0002mA CV
0 0 2 ON 120.000V 119.991V 1.0000mA 0.0014mA CV
0 0 3 ON 190.000V 189.984V 1.0000mA 0.0006mA CV
0 0 4 ON 300.000V 300.016V 1.0000mA 0.0038mA CV
0 0 5 ON 150.000V 149.996V 1.0000mA 0.0032mA CV
0 0 6 OFF 0.000V 0.714V 1.0000mA 0.0001mA
0 0 7 ON 250.000V 250.014V 1.0000mA 0.0015mA CV
0 0 8 ON 350.000V 350.014V 1.0000mA 0.0018mA CV
0 0 9 ON 210.000V 210.001V 1.0000mA 0.0015mA CV
0 0 10 ON 240.000V 240.006V 1.0000mA 0.0011mA CV
0 0 11 ON 165.000V 164.979V 1.0000mA 0.0016mA CV
0 0 12 ON 250.000V 250.020V 1.0000mA 0.0015mA CV
0 0 13 OFF 0.000V 0.537V 1.0000mA 0.0001mA
0 0 14 OFF 0.000V 0.227V 1.0000mA 0.0001mA
0 0 15 OFF 0.000V 0.134V 1.0000mA 0.0000mA
0 0 16 OFF 0.000V 0.060V 1.0000mA 0.0000mA
0 0 17 OFF 0.000V 0.786V 1.0000mA 0.0000mA
0 0 18 OFF 0.000V 0.023V 1.0000mA 0.0002mA
unknown device
please use configuration / hardware menu to specify a hardware
line 0
address 0
custom title 712790
serial 712790
alive OK
supply OK
safety loop OK
EMERGENCY OFF ON
temp 27.0C OK
voltage ramp 1%/s * Vnom
current ramp 0%/s * Inom
kill enabled OFF
fine adjust ON
Camera
Live log
Commands (expert)
© 2011 - 2017 All rights reserved | iseg Spezialelektronik GmbH | | iCS version: 2.1 20180109_1610 | isegHAL version: 1.1.2.9 | MAC: 00:14:2D:4A:2A:DE | Serial: 5230046

5.0

Run 2000


Xamine -- /user/e15190/SpectclMerged/win-files/HiRA/silicon/hitPattern.win
File Window Spectra Options Graphobjects
Spectrum 3
X 21,50
Counts 2

Scribe Name Sean			**others** Bill, Betty Zibi			**Start**	**Stop**	
Run # 2077		**Date** 2/11/18					source	junk
Type	(Data)	calib	debug	alpha	pulser		other	
DAQ	HiRA (14030)		NW/VW (16042)			(Merged (15190))		
Beam: 40Ca		**Energy (MeV/u)**		(140)	50		35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	(124Sn(6.5))		112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		fast clears			DS	
FA	(On)/Off	**Microball**	off	multiplicity				
NW HV file		Co60	15 MeV	(25 MeV)				
Shadow Bar		(A)	(B)	(C)	(D)		none	
Live Time		**master**		**clears**			**CsI rates**	17 k
Check HiRA Voltage/current (once every 4 hrs)							yes/no	
Check coolant level (whenever the vault is open)							(yes)/no	
print scalers; save online spectra							Yes/no	
check summary spectra (once a hour)							Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/							

Scribe Name Sean			**others** Bill, Betty Zibi, Grace			**Start** 6:51 AM	**Stop**	
Run # 2078		**Date** 2/11/18					source	junk
Type	(Data)	calib	debug	alpha	pulser		other	
DAQ	HiRA (14030)		NW/VW (16042)			(Merged (15190))		
Beam: 40Ca		**Energy (MeV/u)**		(140)	50		35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	(124Sn(6.5))		112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		fast clears			DS: NW: ~200	
FA	(On)/Off	**Microball**	off	multiplicity			HiRA: 100	
NW HV file		Co60	15 MeV	(25 MeV)			MB: 500	
Shadow Bar		(A)	(B)	(C)	(D)		none	
Live Time		**master**	900	**clears**			**CsI rates**	6k
Check HiRA Voltage/current (once every 4 hrs)							yes/no	
Check coolant level (whenever the vault is open)							yes/no	
print scalers; save online spectra							Yes/no	
check summary spectra (once a hour)							Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/							

Run 2078

Scaler	HiRA	= 6 k	
	uBall	= 4.3 k	
	nW	= 34 k	RAW
		= 30k	Live

at 62 Live

nW : uB = 300-400Hz Live Live

HiRA:uB = 800 Hz

uB = 1.3k

NW = 29k

Micro: Neutron wall Coin. not working. No master being produced

Scribe Name Sean			others Bill, Betty, Zibi			
Run # 2079		Date 2/11/18		Start		Stop
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	(124Sn(6.5))	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		fast clears		DS HiRA 1k	
FA	On/Off	Microball	off	multiplicity		NW 12k	
NW HV file		Co60	15 MeV	25 MeV		MB: 5k	
Shadow Bar		A)	B)	C)	(D)	none	
Live Time		master	970	clears	28 K	CsI rates	5780
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						

Scribe Name Sean			others				
Run # 2080		Date		Start		Stop	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		Energy (MeV/u)		140	50	35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	112Sn(6.1)	124Sn(6.5)	CH2(10u)
Trigger	singles	coincidence		fast clears		DS HiRA:100	
FA	On/Off	Microball	off	multiplicity		MB: 500	
NW HV file		Co60	15 MeV	25 MeV		NW: 200	
Shadow Bar		A	B	C	D	none	
Live Time		master		clears		CsI rates	430
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		Experiments 14030A and 15190A					

Reduced Beam Intensity

Running Attenuated Beam ~3% dead w/ tgt

μ-Ball ⊙ G.T. ≈ 122 Hz ~125 Hz w/out DT

μB or = 300 Hz w/ target

HiRA OR∘OR ≈ 750 Hz at lugy = 577

μB all ⊙ G-T = w/out tar

HiRA OR∘OR ≈ 620 at lugy 655

μB ⊙ G.T ≈ 22 Hz

μB or ~ 100 Hz

Voltages

Channel	V	Leakage
CsI	-80v	0.11mA

Orbtec Si back Bias

1	+100 v	2.63
2	+100 v	2.28
3	+100 v	2.51
4	+100 v	1.75

Microball

1	+40v	0.02
Deutek 2	+40v	0.06

Scribe Name Sean				**others**			
Run # 2081	**Date**			**Start**		**Stop**	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca	**Energy (MeV/u)**			140	50	35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	112Sn(6.1)	124Sn(6.5)	CH2(10u)
Trigger	singles	coincidence		fast clears			
FA	On/Off	**Microball**	off	multiplicity			
NW HV file		Co60	15 MeV	25 MeV			
Shadow Bar		A	B	C	D	none	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	**Experiments 14030A and 15190A**						

Realized DSS in beamline is big target for neutron walls

Scribe Name Sean		others					
Run # 2082		Date		Start		Stop	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		Energy (MeV/u)		140	50	35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	112Sn(6.1)	124Sn(6.5)	CH2(10u)
Trigger	singles	coincidence		fast clears			
FA	On/Off	Microball	off	multiplicity			
NW HV file		Co60	15 MeV	25 MeV			
Shadow Bar		A	B	C	D	none	
Live Time		master		clears		CsI rates	3500
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						

Beam rate increased

Scribe Name Sean		others					
Run # 2083		Date		Start		Stop	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		Energy (MeV/u)		140	50	35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	112Sn(6.1)	124Sn(6.5)	CH2(10u)
Trigger	singles	coincidence		fast clears		DS HiRA low	
FA	On/Off	Microball	off	multiplicity		NW: Rate	
NW HV file		Co60	15 MeV	25 MeV		MB: 800	
Shadow Bar		A	B	C	D	none	
Live Time		master		clears		CsI rates	3500
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						

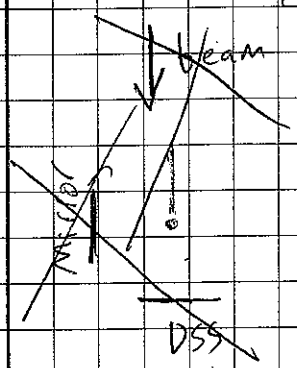
2-11-18 ? - 12:15 Bill did work on trigger after DAQ crash. My understanding is that ~~HiRA trigger was~~ Neutron wall triggers were not being properly blocked by HiRA busy. - Jon B.

12:15 We rotated the plunger to a 45° configuration. We hope this will allow the beam to pass through the gap between the mirror and DS scintillator.

13:08 We tested many positions of the DSS. ~~45°~~ 40° configuration is the optimal position. NW rate w/o beam is 28 KHz and with beam is 29 KHz

14:25 ~~Ok~~. Here is the synopsis of DSS orientation tests. Angles are estimated.

Pos#	Downscaled rate	rate w/ beam ~~with beam rate~~	note
~~1~~ (45°)	50 Hz	10 KHz	
2 (26°)	84 KHz		
3 (30°)	30 Hz		
4 (35°)		400 Hz	Some beam particles
5 (40°)		400 Hz	no beam particles
1 (45°)			High rate of NW Scaler (7130 KHz)



2-11-18 Zibi changed NW gain to
15 MeV HV file
threshold file

HV/supply/NW_for bar 1 to 24 : 3 files, 25, 15 MeV & ^{60}Co
NWA and NWB. ~17.5 MeV

e16042/~~…~~ NEUT_cfd/ lecroy_cfd.tcl.
Load 2MeV disc. file

threshold : ~~…~~ for Co60 HV 2MeV thresh. 15,000
1 MeV 30,000

Put Back 20 MeV threshold files

5:15 pm.

Operator gave us back beam with higher intensity.

			Beam		neutron trigger
no beam	15 k				
w/beam	15.5 k				0.5 k
x10 beam	20 K		10 pA		5
→ x2	27 K			~440	12

Zibi lowered thresholds ~~of~~ of disc.

Scribe Name Betty			others				
Run # 2092		Date 2/11		Start 17:20		Stop	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	(124Sn(6.5))	112Sn(6.1)	CH2(10u)
Trigger	(singles)	coincidence		fast clears			
FA	(On)/Off	Microball	off	multiplicity 73			
NW HV file		Co60	(15 MeV)	25 MeV	threshold 2MeV file		
Shadow Bar		(A)	(B)	(C)	(D)	none	
Live Time		master	430	clears		CsI ~~rates~~ RS	3000
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		Experiments 14030A and 15190A FC: 225pA					

~~Et Zibin~~ Changes: ~~into~~ increase beam intensity; change NW HV & threshold files; lower FA thresholds

Run 2093 . same as 2092

☆ The CsI ~~pedestals~~ thresholds were removed from the DAQ Config file.

Run 2094: ↗

2093 only has ~3000 neutrons after 25 min of data.
after some investigations, look like DAQ is dead
after initial burst of triggers. Need to monitor
event builder run by e15190 check process that
stalled. Then kill process by looking at
Spdaq29: ringbuffer status
kill -9 ??, ~~readout~~ shell
Then begin run

RUN 2095 JUNK
RUN 2096 JUNK

ScalerDisplay

Title: Sn124 Ca40 140MeV/u after fixing hira trigger
Run: 2092
State: Active

Elapsed Run Time: 0 00:02:22

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersHIRA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
MB1_Back_OR		4443.00	639808	
MB2_Back_OR		1660.50	240510	
MB1_Front_OR		3353.00	485570	
MB2_Front_OR		1781.00	259817	
Si_Back_OR		4660.50	671483	
Si_Front_OR		3684.50	534058	
CsI_North_OR		1532.00	222310	
CsI_Down_OR		1069.00	151971	
CsI_South_OR		656.00	92853	
CsI_OR_of_ORs		3112.50	445918	
Raw_Master		3112.00	445812	
Live_Master		442.00	61576	
microBall_OR		3962.00	573242	
Busy		443.00	61706	
AT_OR		0.00	0	
NW_Trigger_Raw		64237.50	9185344	
Live_Master	Raw_Master	442.00 3112.00	61576 445812	0.14 0.14

^{40}Ca + ^{124}Sn @ 140 MeV

Event Builder running e15190

Monitor this

Summary | Source Statistics | Output Ring Stats | Out of order | Barriers | Errors

Input Statistics

Queued Fragments:	28	Bytes:	24928
Oldest Timestamp:	300625093		
Newest Timestamp:	300869227		
Deepest Queue (id : depth)	0 : 28		

Output Statistics

Total Fragments		64903
Total bytes		67557272
Output rate		115912.0
	Source ID	Fragment Count
Hottest	0	32456
Coldest	1	32447

Barrier Statistics

Complete	Barriers Incomplete	Heterogenous
1	0	

Connections

Host	Description	State	Stalled
127.0.0.1	NW	ACTIVE	
127.0.0.1	HiRA	ACTIVE	

Flow Control: Accepting Data

Reset

px 100% Screenshot - 02112018 - 06:48:48 PM.png (6.7 MB)

Terminal

File Edit View Terminal Tabs Help

```
spdaq29:current >
spdaq29:current >
spdaq29:~ >
spdaq29:~ >
spdaq29:~ >ringbuffer status
... |data-size(k)|free(k)|max consumers|producer|maxget(k)|minget(k)|client|clientdata(k)|
e15190 |8194 |8194 |100 |18599 |0 |0 | |
...    |8194 |8194 |100 |-1    |0 |0 | |
       |     |     |    |      |  |  |16611 |0
       |     |     |    |      |  |  |16558 |0
spdaq49.nscl.msu.edu.e15190 2|8194 |8194 |100 |18664 |0 |0 | |

spdaq29:~ >kill -9 18599 18664
```

Scribe Name			others				
Run # 2097	Date		Start		Stop		
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca	Energy (MeV/u)		140	50	35		
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		fast clears		NW single	
FA	On/Off	Microball	off	multiplicity			
NW HV file		Co60	15 MeV	25 MeV			
Shadow Bar		A	B	C	D	none	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						

RUN 2099 : Trigger NW + μBall.

Good runs : 2092 + 2093 + 2094 — coin-coin

~~2097~~ 2097 — NW + ~~MB~~ singles.

2099 — (NW + MB) + ~~(NW+MB)~~

2100 — (NW+MB) + (HiRA M

)

Scribe Name DANIELE			**others** OM, BETTY, TOMMY					
Run # 2099		**Date** 02/11/2018		**Start** ~~20:30~~ 19:00		**Stop** 20:30		
Type	Data	calib	debug	alpha	pulser	source	junk	
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other	
Beam: 40Ca		**Energy (MeV/u)**		140	50	35		
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)	
Trigger	singles	coincidence NW+μBall		fast clears				
FA	On/Off	**Microball**	off	multiplicity				
NW HV file		Co60	15 MeV	25 MeV				
Shadow Bar		A	B	C	D	none		
Live Time		**master**		**clears**		**CsI rates**		
Check HiRA Voltage/current (once every 4 hrs)						yes/no		
Check coolant level (whenever the vault is open)						yes/no		
print scalers; save online spectra						Yes/no		
check summary spectra (once a hour)						Yes/no		
Comments:	**Experiments 14030A and 15190A**							

Scribe Name DANIELE			**others** OM, BETTY, BILL, TOMMY					
Run # 2100		**Date** 02/11/2018		**Start** 20:30		**Stop** 21:00		
Type	Data	calib	debug	alpha	~~pulser~~	source	junk	
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other	
Beam: 40Ca		**Energy (MeV/u)**		140	50	35		
Target	viewer	~~blank~~	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)	
Trigger	singles	coincidence NW+μBall HiRA+μBall		fast clears				
FA	On/Off	**Microball**	off	multiplicity				
NW HV file		Co60	15 MeV	25 MeV				
Shadow Bar		A	B	C	D	none		
Live Time		**master**		**clears**		**CsI rates**		
Check HiRA Voltage/current (once every 4 hrs)						yes/no		
Check coolant level (whenever the vault is open)						yes/no		
print scalers; save online spectra						Yes/no		
check summary spectra (once a hour)						Yes/no		
Comments:	**Experiments 14030A and 15190A**							

IB)

MB)

RUN 2101 : same as before

~~RUN 2102 : same as before~~

Rebooted Readout.

RUN 2102 : same as before
START 22:10
STOP 23:00

RUN 2103 : same as before
START 23:00
STOP 23:37

ScalerDisplay

Title: Sn124 Ca40 140MeV/u, neutron uBall, hira uBall coincidences
Run: 2103
State: Active
Elapsed Run Time: 0 00:00:22

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

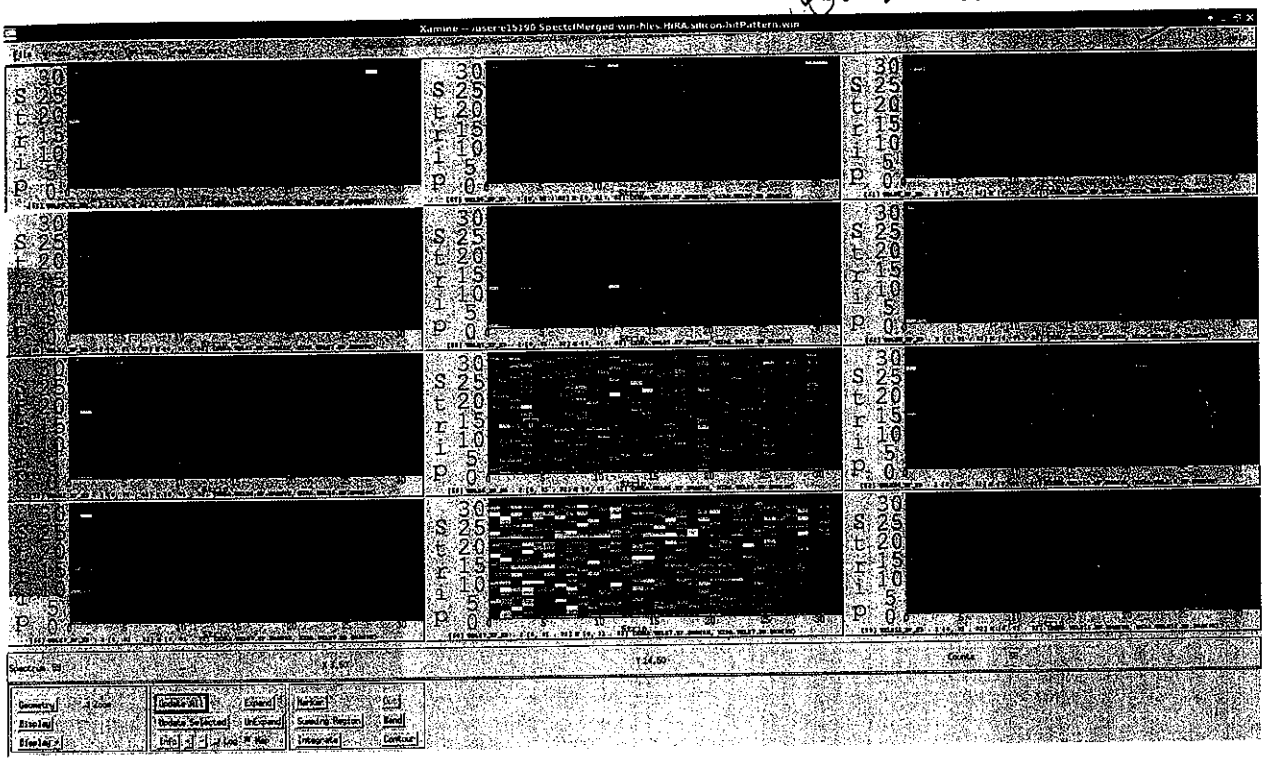
ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
OR_T_VW		16892.00	239853	
OR_B_VW		33558.50	474151	
OR_T_OR_B_VW		11512.50	163483	
GATE_VW		25648.50	362309	
FCLR_VW		25508.00	360219	
NW_Raw_Trig		29219.00	1114092	
NW_Live_Trig		25648.50	362309	
NW_Fast_Clear		25508.00	360219	
NW_Common_Gate		0.00	0	
FART_OR		22042.50	309461	
MASTER_TRG		395.00	5508	
NW_Live_Trig	NW_Raw_Trig	25648.50 292	362309 1114(	0.88 0.33

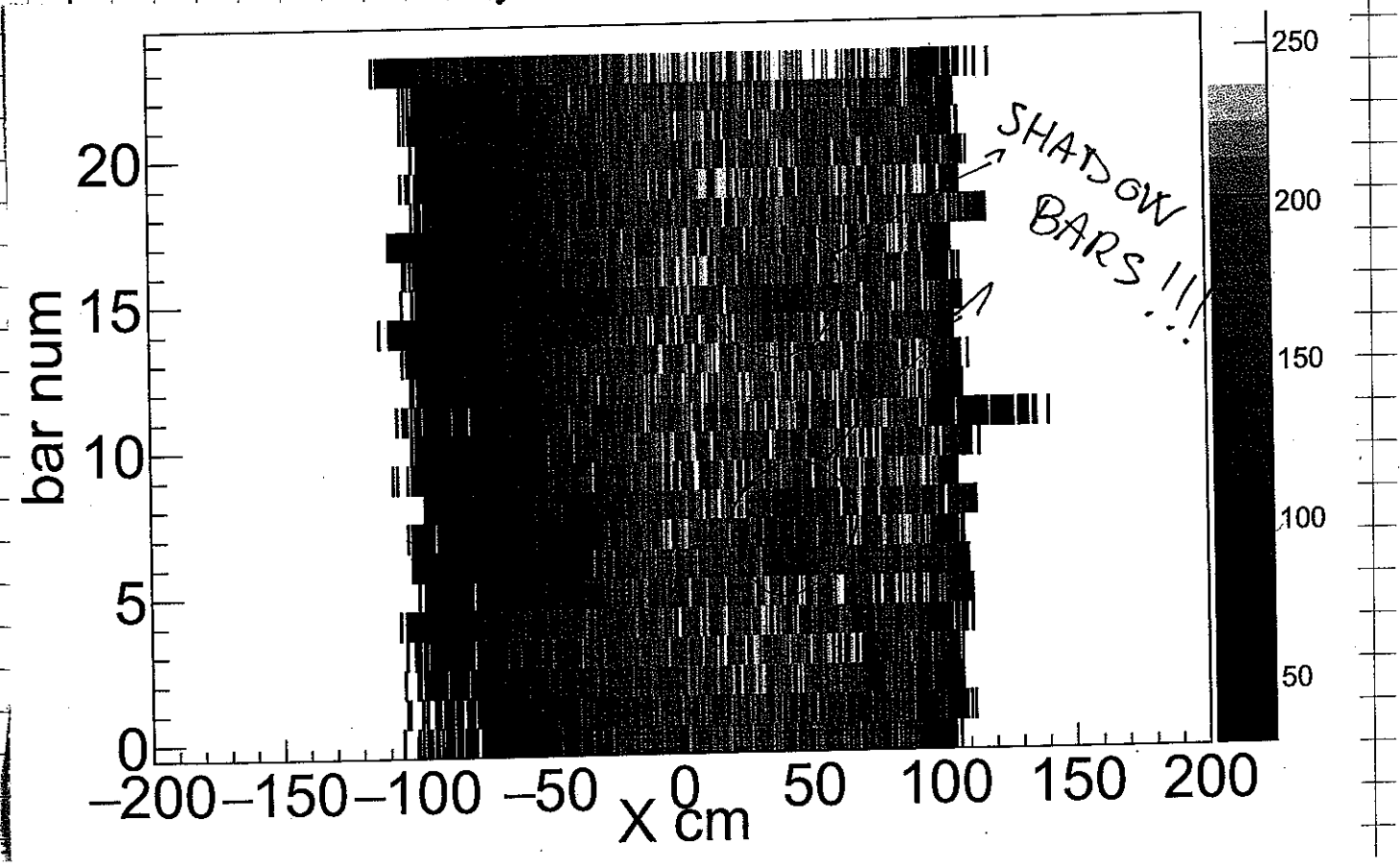
Enable Alarms

HiRA Hit pattern

worse than Run 2000 on Pg 50



NWB Hit Pattern from runs: 2092, 2093, 2094, 2097

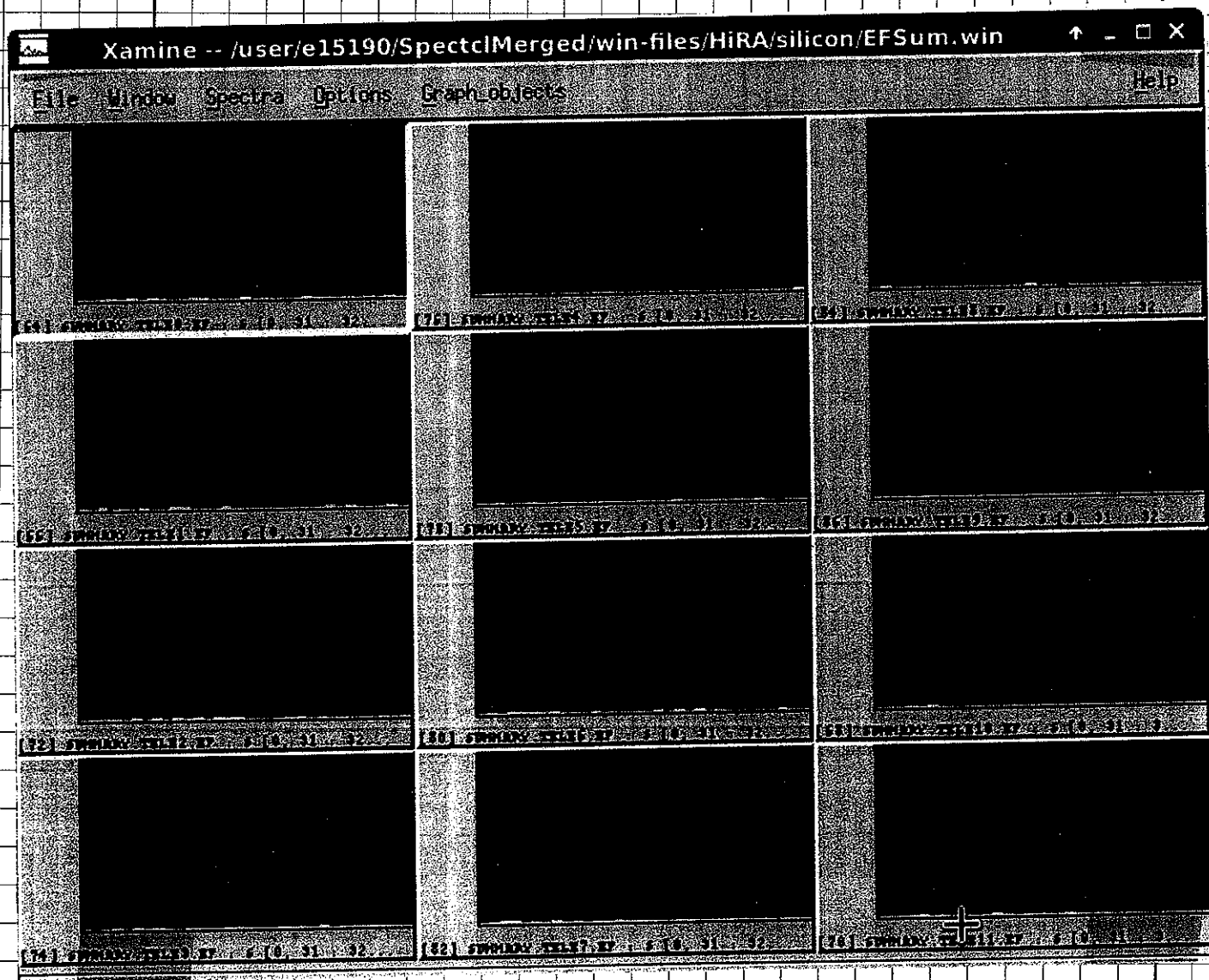


RUN 2104: START = 23:38
STOP = 00:15
Same as before

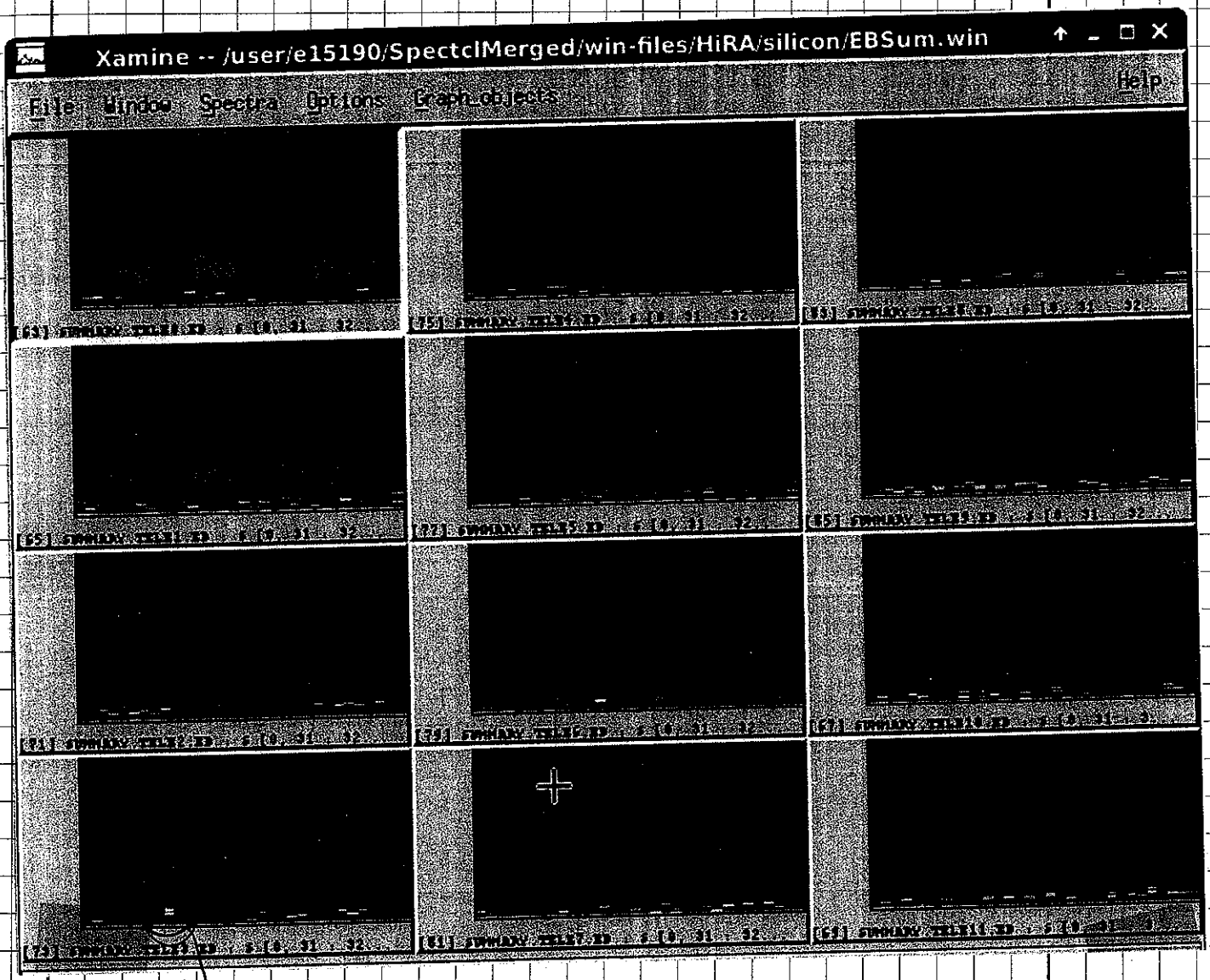
Run 2105: Start = 00:16
Stop = 00:53
Same as before

Run 2106 Start = 00:53
Stop =
Same as before

Silicon fronts More Strips lost



- Silicon Backs



Actual Back Strips show Charge bleeding
- Other missing strips no charge bleeding

Changed to Sn 112 target for four hours

Scribe Name Sean		others					
Run # 2107		Date 2/12/18		Start 1:33		Stop 2:02	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	58Ni	64Ni	(112Sn)	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger	Must MBall Have MBall	Sean	
FA	(On)/Off	Microball	off	multiplicity		Downscale HiRa: 100	
NW HV file		Co60	(15 MeV)	25 MeV		~~MBs: 500~~	
Shadow Bar		(A)	(B)	(C)	(D)	none	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						

Run 2108: Start: 2:03
Stop: 2:29
Same as above

Downscale HiRa: 100
MBall: 500

Run 2109: Start = 2:31
Stop = 2:57
Same as above

Run 2110: Start = 2:57
Stop = 3:26
Same as above

Run 2111: Start = 3:27
Stop = 4:01
Same as above

ScalerDisplay

Title: Sn112 Ca40 140MeV/u, neutron uBall, hira uBall coincidences
Run: 2107
State: Active
Elapsed Run Time: 0 00:22:44

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
OR_T_VW		14108.50	18441889	
OR_B_VW		27370.50	36438355	
OR_T_OR_B_VW		10225.00	13317224	
GATE_VW		19641.00	26128197	
FCLR_VW		18794.00	24955497	
NW_Raw_Trig		31139.00	42710055	
NW_Live_Trig		19641.00	26128197	
NW_Fast_Clear		18794.00	24955507	
NW_Common_Gate		0.00	0	
FART_OR		260665.50	352856951	
MASTER_TRG		2029.00	2835804	
NW_Live_Trig	NW_Raw_Trig	19641.00 311	26128197 427	0.63 0.61

Enable Alarms

ScalerDisplay

Title: Sn112 Ca40 140MeV/u, neutron uBall, hira uBall coincidences
Run: 2107
State: Active
Elapsed Run Time: 0 00:23:30

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersHIRA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
MB1_Back_OR		5757.50	7991314	
MB2_Back_OR		2401.00	3286909	
MB1_Front_OR		5448.50	7546159	
MB2_Front_OR		2938.50	4001344	
Si_Back_OR		6559.50	9069891	
Si_Front_OR		6615.00	9124062	
CsI_North_OR		4063.00	5695748	
CsI_Down_OR		2854.00	3946323	
CsI_South_OR		1557.00	2173992	
CsI_OR_of_ORs		7481.00	10416008	
Raw_HiRA		7480.00	10411687	
Global_Master		2123.50	2929797	
microBall_OR		13583.00	18914675	
Busy		2124.00	2930904	
AT_OR		0.00	0	
NW_Trigger_Raw		69328.50	97285705	

Enable Alarms

Run 2112 Start: 4:01
Stop: 4:33
Same as before

Run 2113 Start: 4:34
Stop: 5:08
Same as before

Run 2114 Start: 5:09
Stop: 5:31
Same as before

Change target to ^{58}Ni 5:40

Scribe Name Sean			others				
Run # 2115		Date 2/12/18		Start 5:42		Stop 6:12	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger	Coincidence	Nwt MB Int. Rat MB	
FA	(On/Off)	Microball	off	multiplicity		Downscale: Hira 100	
NW HV file		Co60	(15 MeV)	25 MeV		MB 500	
Shadow Bar		(A)	(B)	(C)	(D)	none	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra						(Yes)/no	
check summary spectra (once a hour)						(Yes)/no	
Comments:	Experiments 14030A and 15190A						

ScalerDisplay

Title: NI 58 Ca40 140MeV/u, neutron uBall, hira uBall coincidences
Run: 2115
State: Active

Elapsed Run Time: 0 00:01:16

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersHIRA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
MB1_Back_OR		5491.50	425778	
MB2_Back_OR		2081.50	158650	
MB1_Front_OR		4944.50	381207	
MB2_Front_OR		2485.50	184739	
Si_Back_OR		6190.50	478277	
Si_Front_OR		5966.00	455179	
CsI_North_OR		3127.50	242057	
CsI_Down_OR		2048.00	163869	
CsI_South_OR		1161.50	88496	
CsI_OR_of_ORs		5723.00	446193	
Raw_HiRA		5721.00	446017	
Global_Master		1787.50	122950	
microBall_OR		12499.00	951310	
Busy		1788.00	123009	
AT_OR		0.00	0	
NW_Trigger_Raw		60327.50	4705855	

Enable Alarms

ScalerDisplay

Title: NI 58 Ca40 140MeV/u, neutron uBall, hira uBall coincidences
Run: 2115
State: Active

Elapsed Run Time: 0 00:02:24

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
OR_T_VW		12407.50	1686018	
OR_B_VW		25419.00	3489566	
OR_T_OR_B_VW		8823.50	1194995	
GATE_VW		18516.00	2549417	
FCLR_VW		17842.00	2452777	
NW_Raw_Trig		27552.00	4408127	
NW_Live_Trig		18516.00	2549417	
NW_Fast_Clear		17842.00	2452777	
NW_Common_Gate		0.00	0	
FART_OR		261007.00	35612279	
MASTER_TRG		1780.50	247852	
NW_Live_Trig	NW_Raw_Trig	18516.00 275	2549417 440	0.67 0.58

Enable Alarms

Run 2116 Start: 6:13
Stop: 6:43
Same as before

Run 2117 Start: 6:44
Stop: 7:11
Same as before

Run 2118 Start = 7:12
Stop = 7:42
Same as before

Run 2119 Start = 7:43
Stop = 8:14
Same as before

Run 2120 Start = 8:14
Stop = 8:44
Same as before.

Run 2121 Start = 8:44
Stop = 9:11
Same as before

Run 2122 start = 9:11
stop = 9:25
Same as befor
stopped to go in to remove shaddow bars

Scribe Name: Justin			others: Sean, Juan, Gene, Jung Heo				
Run # 2123		Date 2/12/18		Start 9:59		Stop 10:16	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger	Comadeve	NW+MB HiRa+MB	
FA	(On)/Off	Microball	off	multiplicity			
NW HV file		Co60	(15 MeV)	25 MeV			
Shadow Bar		A	B	C	D	(none)	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						(Yes)/no	
Comments:	Experiments 14030A and 15190A						

Removed Shaddow bars & stand. Kyle will go in to inspect. Stopped because bad Silicon buffers.

ScalerDisplay

Title: Ni 58 Ca40 140MeV/u, neutron uBall, hira uBall coincidences
Run: 2123
State: Active
Elapsed Run Time: 0 00:08:54

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersHIRA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
MB1_Back_OR		5635.00	3018359	
MB2_Back_OR		1951.50	1045259	
MB1_Front_OR		5069.50	2704299	
MB2_Front_OR		2279.50	1221634	
SI_Back_OR		6243.50	3340612	
SI_Front_OR		5916.00	3162158	
CsI_North_OR		2522.50	1436081	
CsI_Down_OR		1749.50	981667	
CsI_South_OR		990.50	534212	
CsI_OR_of_ORs		4736.50	2660401	
Raw_HiRA		4735.50	2659461	
Global_Master		1628.50	867333	
microBall_OR		10292.00	5637133	
Busy		1629.50	867775	
AT_OR		0.00	0	
NW_Trigger_Raw		56344.00	30418525	

Enable Alarms

Run 2124 Junk Testing pulser and chips

Run 2125 Start: 11:31
Stop: 12:00
Kyle reloaded chips. faulty chip Errors gone.
Same setting as before (Run 2123)

Run 2126 Start: 12:00
Stop: 12:30
Same as before

Run 2127 Start: 12:30
Stop:
Same as before

Run 2128 Start: 1:01
Stop: 1:32
Same as before

Run 2129 Start: 1:32
Stop: 2:20

Run 2130 Start: Junk
Stop:
Changed chip board for tele 5 CB
? CB 20 ↔ 66

Run 2131 [redacted] start: 15:48 HIRA voltage 80
Stop: 16:27
no change

Run 2132 Start: 16:27 HiRA HV off
Motherboard #2 tripped

Run 2133 Start: 16:41
Stop: 17:20

Run 2134 Start: 17:20
Stop: 17:41
Bias is off.

Scribe Name Kuan Zhu			**others** Tomoy, Daniele, BTsang				
Run # 2131		**Date** 2/12/18		**Start** 15:48		**Stop** 16:27	
Type (Data)		calib	debug	alpha	pulser	source	junk
Beam: 40Ca		**Energy (MeV/u)**		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger	Coincidence	MV+uBall HiRA+uBall	
FA	(On)/Off	**Microball**	off	multiplicity 3			
NW HV file		Co60	(15 MeV)	25 MeV			
Shadow Bar		A	B	C	D	(none)	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						yes/(no)	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra						(Yes)/no	
check summary spectra (once a hour)						(Yes)/no	
Comments:	**Experiments 14030A and 15190A**						
Chipboard was changed starting from Run 2131.							

~~Run 2135 Start: 18:47~~

Run 3135 replace ~~chip~~ 9 chips
~~Run~~ Start 18:47 ~~18:56~~
Stop 18:56

Run 3136 18:56
18:58

Rate Study

2137 drop rate (÷100) to ~400/sec for HIRA singles
DS=1

2138 increase beam X10
HIRA singles ~650/sec. DS=1

2139 ~~no beam rate ~350/sec for HIRA singles~~
Started: 20:51

Changed E-Back ~~chip~~ tele 3 and 4
Chipboard back to original.

~~Stop:~~
2140: CsI Gain changed to 170 on tower 1
Start: 20:59
Stop: 21:07

~~Run 2135~~
~~Start: 18:47 MB18~~

Run 2141. Changed HiRA tdc ~~range~~ range
to be 5μs wide and ~~centered~~ offset +3μs

Scribe Name	Kuan Zhu		others	Daniele, Tommy, Betty			
Run #	2135	Date	02/12/2018	Start	18:47	Stop	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger	Coincidence	NW+uBall HiRA+uBall	
FA	(On)/Off	Microball	off	multiplicity	3		
NW HV file		Co60	(15 MeV)	25 MeV			
Shadow Bar		A	B	C	D	(none)	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						(yes)/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						

Scribe Name	Kuan Zhu		others	Kyle, Daniele, Betty, Bill, Tommy			
Run #	2139	Date	02/12/2018	Start	20:51	Stop	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger	Coincidence	NW+uBall HiRA+uBall	
FA	(On)/Off	Microball	off	multiplicity	3		
NW HV file		Co60	(15 MeV)	25 MeV			
Shadow Bar		A	B	C	D	(none)	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						(yes)/no	
print scalers; save online spectra						Yes/(no)	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						

Chipboards back to original On kic EB 3, 4
Downscale : 500

Scribe Name	Kuan Zhu		**others**	Kyle, Daniele Betty, Bill, Tammy			
Run # 2141		**Date** 02/12/2018		**Start**		**Stop**	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		**Energy (MeV/u)**		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger Coincidence		(NW+uBall HiRA+uBall)	
FA	(On/Off)	**Microball**	off	multiplicity 3			
NW HV file		Co60	(15 MeV)	25 MeV			
Shadow Bar		A	B	C	D	(none)	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						(yes/no)	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra						Yes/(no)	
check summary spectra (once a hour)						(Yes/no)	
Comments:	**Experiments 14030A and 15190A**						

Changed HiRA's TDC range to 5 μs offset -3 μs
Took uBall singles outside of the triggers
Reduced uBall TDC delay by 110 ns (
(+350)
what we had before

Delay HiRA & NW Master by 150 ns
Delay Fast Clear by 150 ns
Increased the Fast Busy by 150 ns

Kuan:

Run 2142 start: 22:05
stop: 22:35

Run 2143 start: 22:36
stop: 23:06

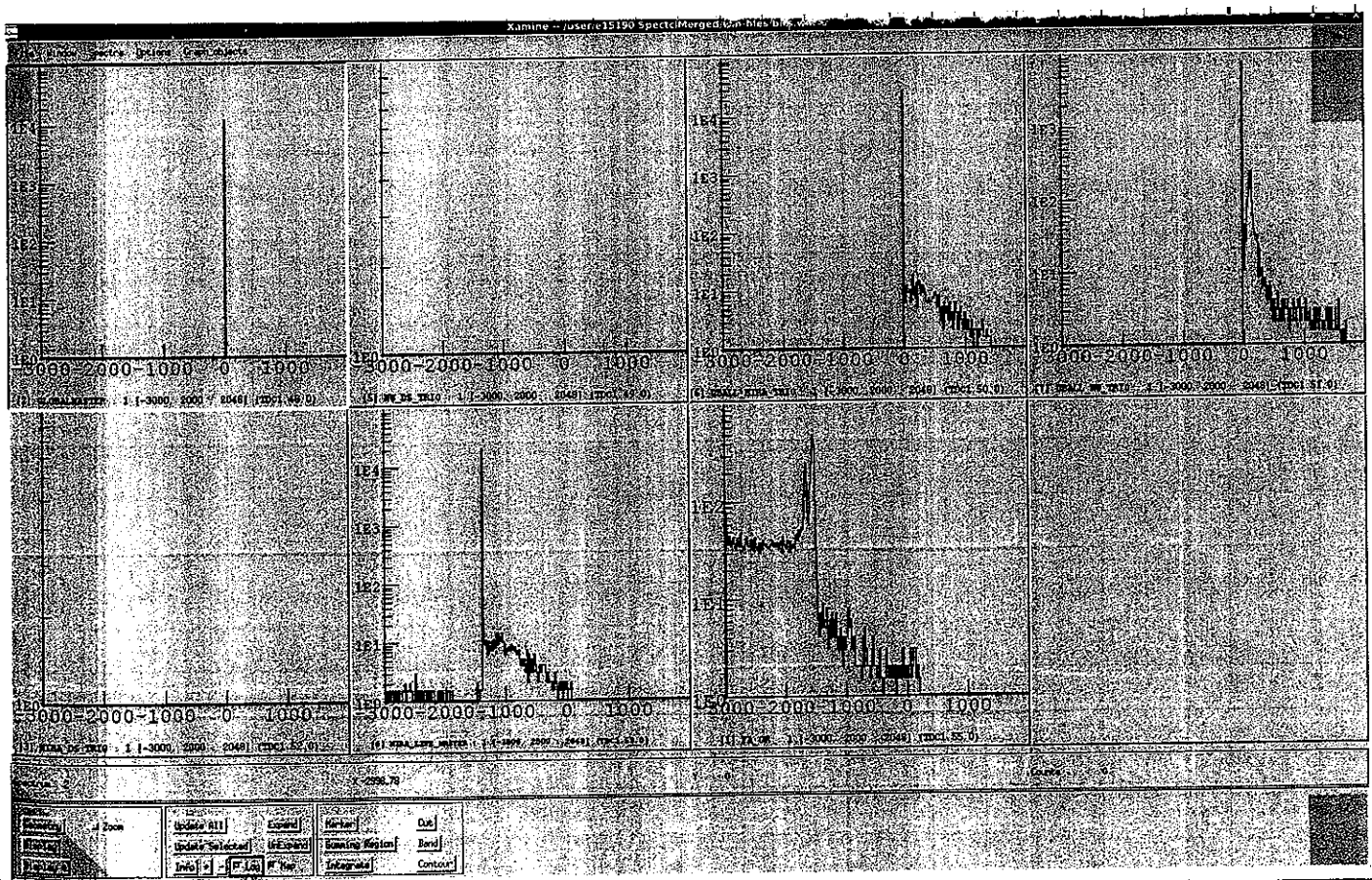
Run 2144 start: 23:06
stop: 23:37

Run 2145 start: 23:38
stop: ~~08~~ 00:08

Genie:

Run 2146 Start: 00:08
Stop: 60:39

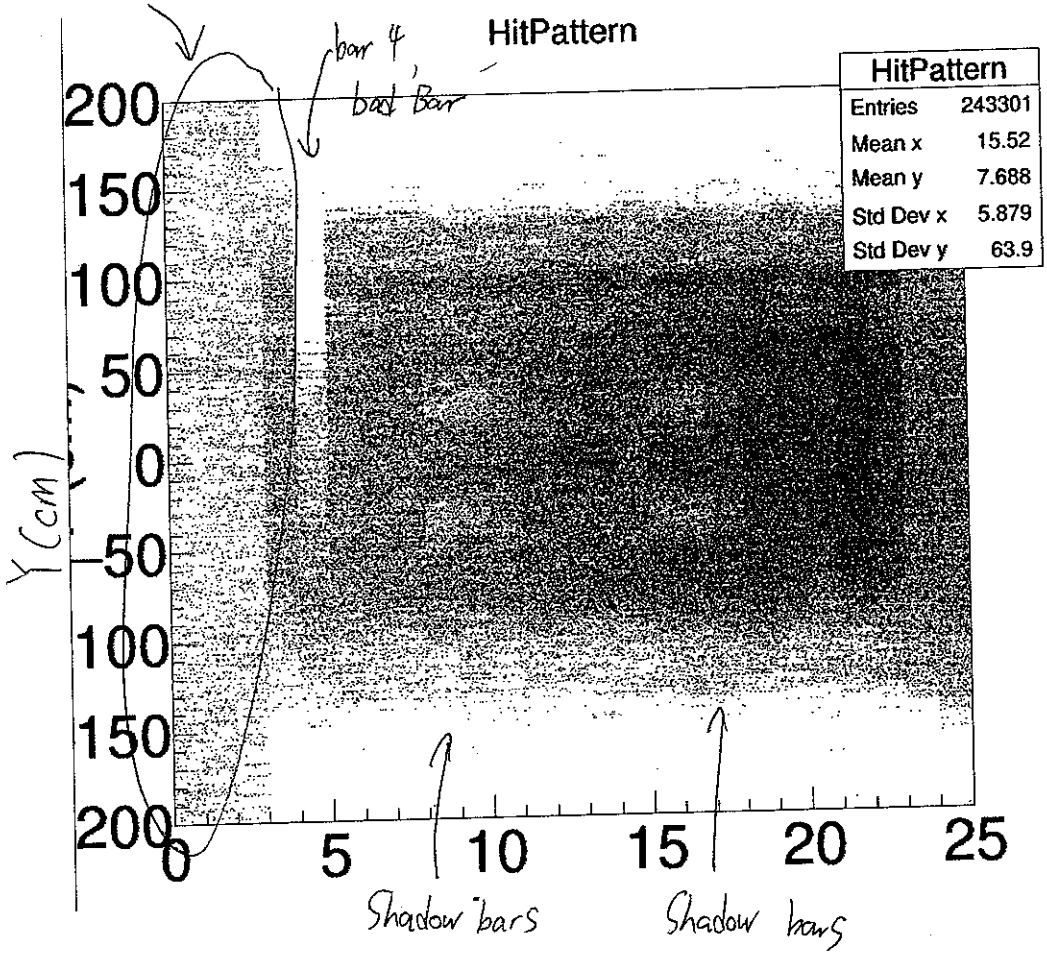
Scribe Name	Kuan Zhu	**others**	Kyle, Daniele, Betty, Bill, Tommy				
Run #	242	**Date**	02/12/2018	**Start**	22:05	**Stop**	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		**Energy (MeV/u)**		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger Coincidence		NW+CsI Ball HiRA+CsI ball	
FA	(On)/Off	**Microball**	off	multiplicity	3		
NW HV file		Co60	(15 MeV)	25 MeV			
Shadow Bar		A	B	C	D	(none)	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	**Experiments 14030A and 15190A**						



Run 2147 Start = 00:40
Stop = 01:12

No calibration, lie outside NW

VW Calibrated with run 2061



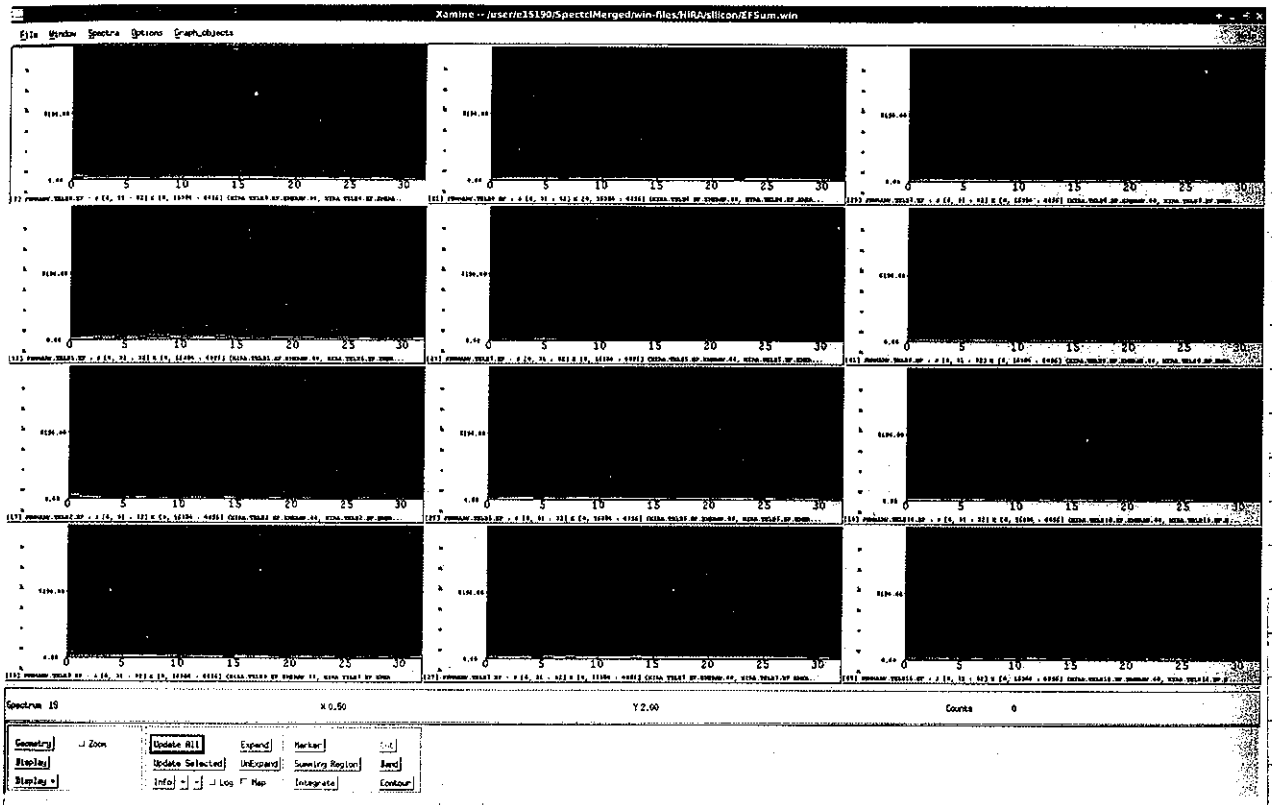
Run 2148 Start = 01:13
Stop = 01:17

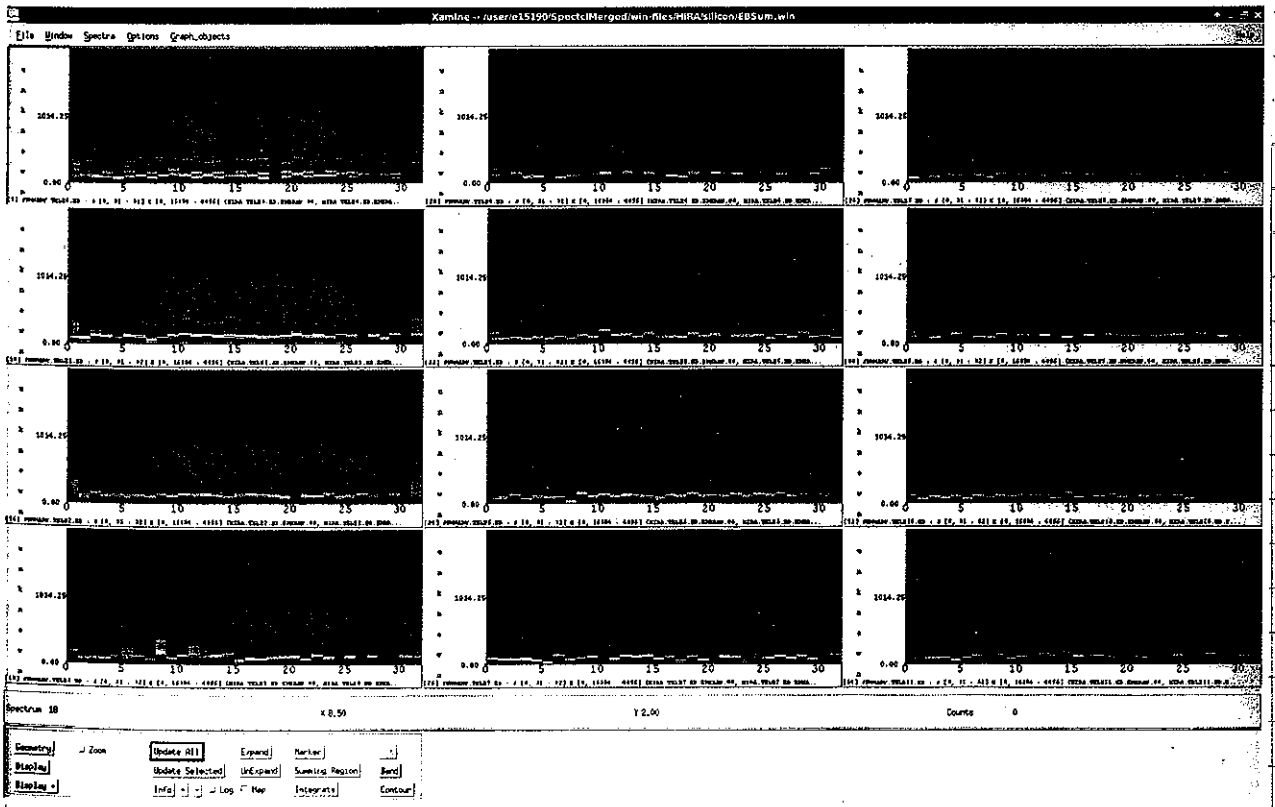
Run 2149 Start = 01:17
Stop = 01:49

before: MBadc5 in VSN=14
MBadc6 no VSN!

WARNING:
FROM HERE CORRECTED DAQ CONFIG.TCL.
MBadc5 in VSN=13
MBadc6 in VSN=14

From Run# 247 (02/13 01:12)





Run 2150 Start = 01:49
Stop = 02:21

Run 2151 Start = 02:21
Stop = 02:53

Run 2152 Start = ~~02:53~~ 02:54
Stop = 03:25

Run 2153 Start = 03:26
(Junk) Stop = 03:28

03:30 ⇒ Faulty chip errors. Many silicon strips are missing

03:34 DAQ machine down. (freeze) ~~⇒ DA~~
(u3pc2)

03:57 DAQ rebooted and started to take data.

Run 2154 Start = 03:56
(Junk) Stop =

↑ ~~NOT STORED!~~

1003 Error occurred!

05:45 HiRA Recovered!

Run 2155 Start = 05:44
Stop = 06:21

Note:
- There's no e15190.setup file in /user/e15190/HINP_ADC directory.
  ⇒ e14030c.setup file used.
- /user/e15190/CSI-disc doesn't exist.
  ⇒ /user/e14030/CSI-disc folder used.
  e14030.shp and e14030.dis are used accordingly.
- Sometimes, duplicate timestamp window opens. [Scaler readout makes this happen RF.
- Trigger rate is lower than before HiRA dies.

Scribe Name Genie			**others** Jong Won, Jung Woo				
Run # 2155		**Date** 02/13		**Start** 05:44		**Stop** 06:21	
Type (Data)		calib	debug	alpha	pulser	source	junk
Beam: 40Ca		**Energy (MeV/u)**		(140)	50	35	
Target	viewer	blank	(58Ni)	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger	coincidence	NW+uBall HiRA+uBall	
FA	(On)/Off	**Microball**	off	multiplicity 3			
NW HV file		Co60	(15 MeV)	25 MeV			
Shadow Bar		A	B	C	D	(none)	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						(Yes)/no	
check summary spectra (once a hour)						(Yes)/no	
Comments:	**Experiments 14030A and 15190A**						

See above long notes.

82

ScalerDisplay

Title: Ni 58 Ca40 140MeV/u, coincidence data delayed triggers 150ns
Run: 2155
State: Active
Elapsed Run Time: 0 00:13:24

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]		
OR_T_VW		11636.00	9504585			
OR_B_VW		24687.50	19659788			
OR_T_OR_B_VW		8009.50	6509856			
GATE_VW		18296.00	14528612			
FCLR_VW		17658.00	13996556			
NW_Raw_Trig		25263.00	20687368			
NW_Live_Trig		18296.00	14528611			
NW_Fast_Clear		17658.00	13996562			
NW_Common_Gate		0.00	0			
FART_OR		238712.00	188550968			
MASTER_TRG		1584.50	1266232			
NW_Live_Trig	NW_Raw_Trig	18296.00	252 14528611	20(	0.72	0.70

Enable Alarms

ScalerDisplay

Title: Ni 58 Ca40 140MeV/u, coincidence data delayed triggers 150ns
Run: 2155
State: Active
Elapsed Run Time: 0 00:12:58

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersHIRA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
MB1_Back_OR		1472.50	1165084	
MB2_Back_OR		845.00	668614	
MB1_Front_OR		1495.00	1184273	
MB2_Front_OR		1030.00	803872	
Si_Back_OR		2030.50	1599637	
Si_Front_OR		2206.00	1731645	
CsI_North_OR		2417.50	1922865	
CsI_Down_OR		1707.00	1307344	
CsI_South_OR		895.50	712707	
CsI_OR_of_ORs		4498.00	3547384	
Raw_HiRA		4496.50	3546156	
Global_Master		1562.50	1222769	
microBall_OR		9853.50	7691249	
Busy		1563.50	1223444	
AT_OR		0.00	0	
NW_Trigger_Raw		54400.50	42852999	

Enable Alarms

ScalerDisplay

Title: Ni 58 Ca40 140MeV/u, coincidence data delayed triggers 150ns
Run: 2155
State: Active
Elapsed Run Time: 0 00:14:10

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersFA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
FA01		5671.00	5023615	
FA02		20946.00	18338830	
FA03		6463.00	5632898	
FA04		7881.00	6888092	
FA05		16067.00	13919944	
FA06		29700.50	26078396	
FA07		19830.50	17271287	
FA08		9008.00	7854224	
FA09		7812.50	6878560	
FA10		4134.50	3639009	
FA11		10058.50	8759742	
FA12		20909.50	18186395	
FA13		5124.00	4467965	
FA14		19590.00	17087055	
FA15		16398.50	14482269	
FA16		4621.50	4114485	

Enable Alarms

Run 2156 Start = 06:21
Stop = 06:54

Run 2157 Start = 06:55
Stop = 07:26

Run 2158 Start = 07:27
Stop = 07:56

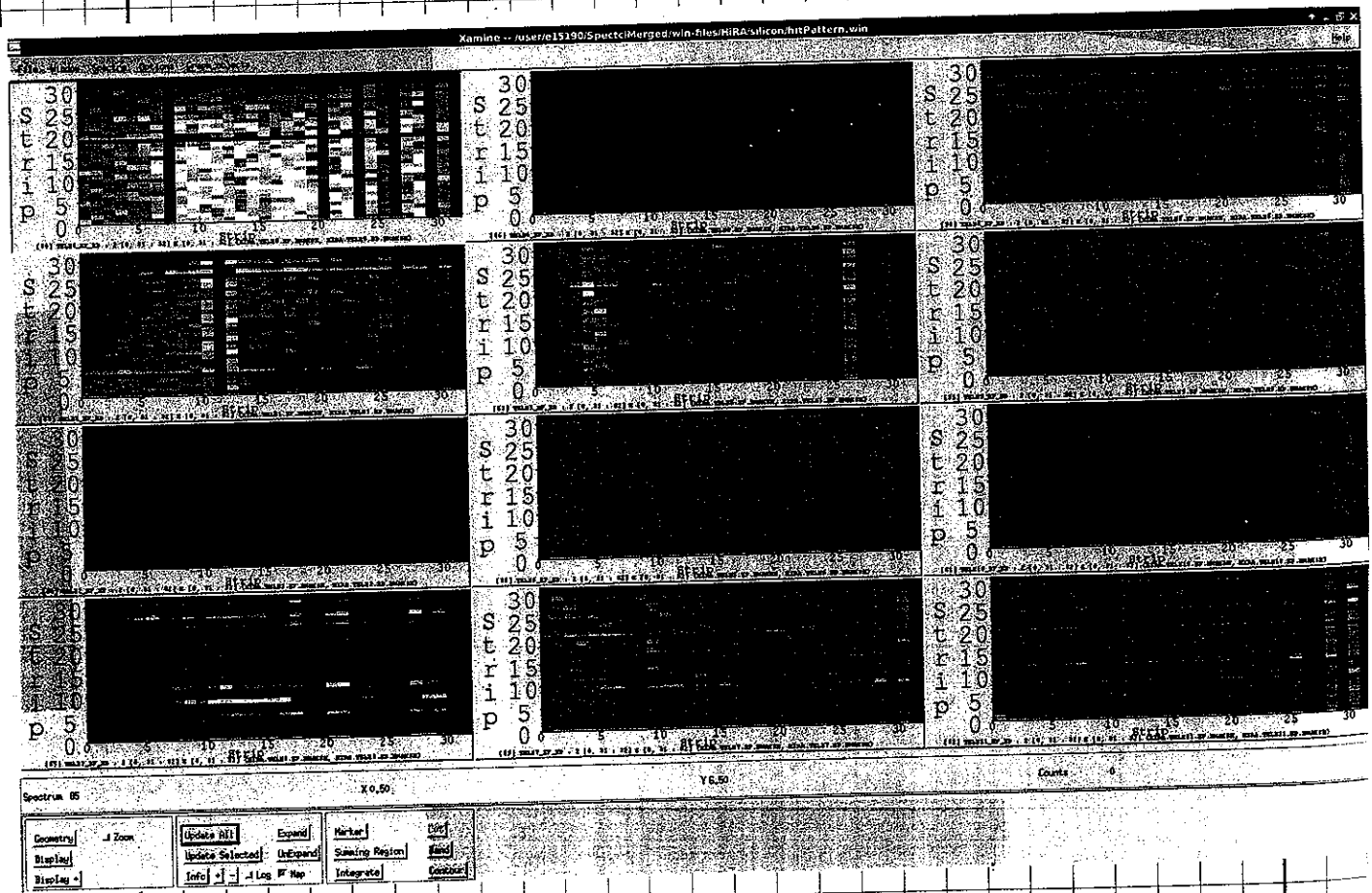
Switched back to 200 saved at shaper file

Run 2159 Start = 7:58
Stop = 8:28
Changed shaper file to 200 gain

Run 2160 Start: 8:28
Stop: 8:49

Same as before
CB issues mid run. Reloading Chips.

Run 2161 Start: 9:00
Stop: 9:42
same as before Chips reloaded
spectra looks ok.



Run 2162 Start: 9:42
Stop: 10:01
same as before

Run 2163 Start: 10:17
Stop: 10:46
same as before

Run 2164 Start: 10:46
Stop: 10:50

Run 2165 Junk

Run 2166 Start: 11:03
Stop: 11:22
same as before

Run 2167 Start: 11:34
Stop: 12:02
same as before

Run 2168 Start: 12:03
Stop:
same as before
Junk

Run 2169 Start: 12:12
Stop: 12:15
alpha source shows no diff. same strips are dead.

For runs 2170-2183 trigger changed to Si only DS 1 for testing map of Si

Run 2170	CH 0
2171	CH 1
2172	CH 2
2173	CH 3
2174	CH 4
2175	CH 5
2176	CH 6
2177	CH 7
2178	CH 8
2179	CH 9
2180	CH 10
2181	CH 11
2182	CH 12
2183	CH 13
2184	CH 14
2185	CH 15
2186	CH 16
2187	CH 17
2188	CH 18

Run 2189 Start: Junk too short
Stop:

Trigger changed back to data.
taking data as normal again.

Run 2190 Junk

WARNING: FROM THIS RUN MBall R8_10 time is not working
MBtdc2 ch 31!

Scribe Name Justin			**others** Kyle, Sean, Bill, Betty				
Run # 2191		**Date** 02/13/18		**Start** 13:19		**Stop**	
Type	Data	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		**Energy (MeV/u)**		140	50	35	
Target	viewer	blank	58Ni	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	Merged				
FA	On/Off	**Microball**	off	multiplicity			
NW HV file		Co60	15 MeV	25 MeV			
Shadow Bar		A	B	C	D	none	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		**Experiments 14030A and 15190A**					
DS=500							

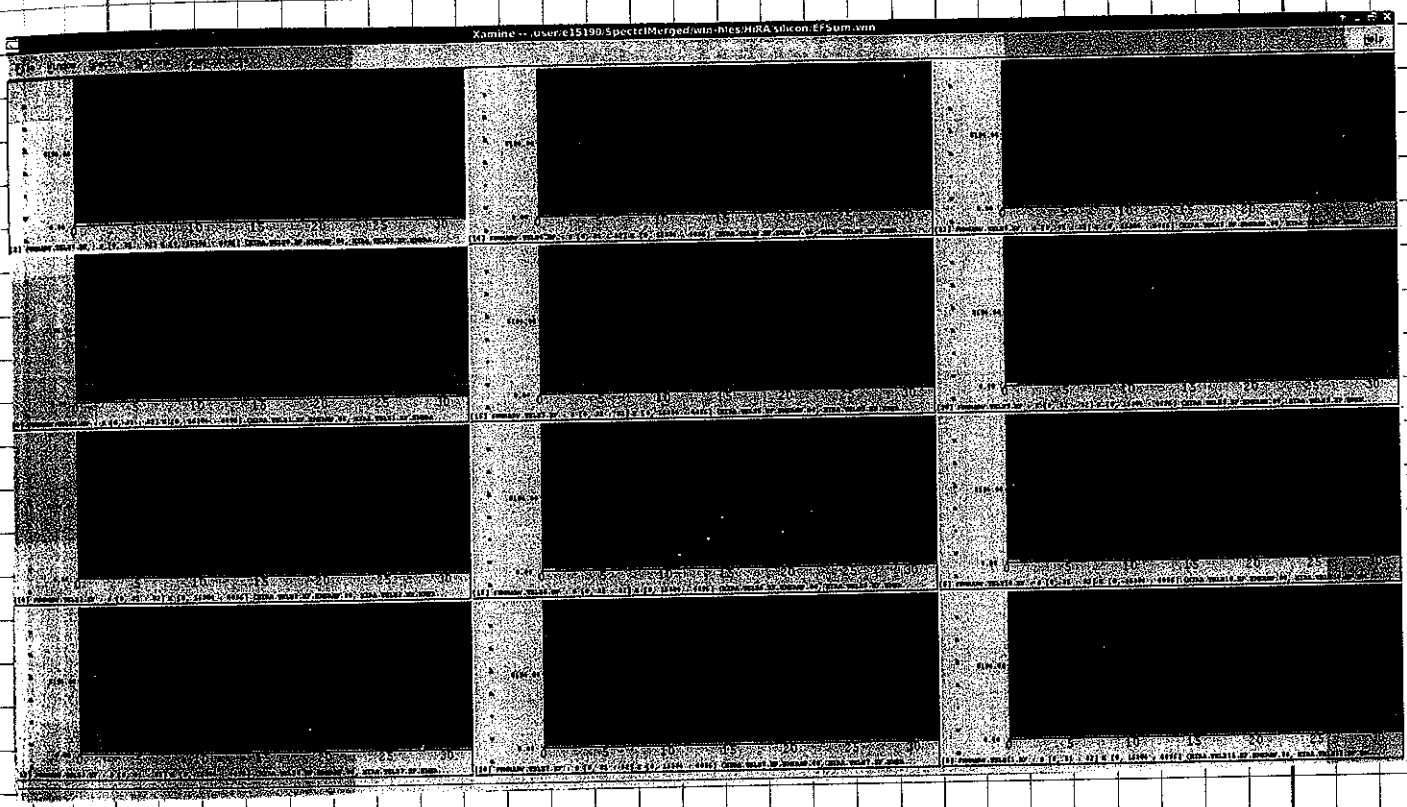
Run 2192: Start ~~1514~~ 13:47
End ~~1545~~ 13:49

Run 2193: Start: 13:49
End: 14:29

Run 2194 Start: 14:29
Stop: 14:50

Run 2195 Start 15:19
Stop 15:52

Change discriminator thresholds see below for EF only



RUN 2196 Start: 15:52
Stop: 16:29

Kwen took over from now

Run 2197 start: 16:29
stop: 17:07

RUN 2198 start: 17:07
stop 17:38

FROM RUN 2198 MBtdc2 ch 31 works orgain!

Run 2199: start: 17:39
stop: 18:08

Run 2200: start: 18:09
stop: 18:36

Betty noticed that from run 2155 the wrong CsI gains were loaded. This had been corrected and we are running with 170 for all shapes. e15190.shp + e15190.ds

Target changed from Ni58 to Sn112

Run 2202: start: 19:47
stop: 20:00 Junk

Run 2203: start: 20:00
stop: 20:01 Junk

Run 2204: The HRA trigger delay was reduced by 1ns. This seems to have fixed the problem of the missing strips.
Start: 20:14

Run 2204 start: 20:14
stop: 20:45

Run 2205 start: 20:46
stop: 21:27

Run 2206 start: 21:28
stop: 22:00

Run 2207 start: 22:00
stop: 22:36

Scribe Name	Kuan Zhu		**others**	Betty, Bill, Zibi, Daniele, Kyle, Tommy			
Run #	2204	**Date**	02/13/2018	**Start**	20:14	**Stop**	
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		**Energy (MeV/u)**		(140)	50	35	
Target	viewer	blank	58Ni	64Ni	(112Sn)	124Sn	CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger Coincidence	NW+uBall HiRA+uBall		
FA	(On)/Off	**Microball**	off	multiplicity	3		
NW HV file		Co60	(15 MeV)	25 MeV	threshold: 2MeV	file	
Shadow Bar		A	B	C	D	(none)	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra						Yes/(no)	
check summary spectra (once a hour)						(Yes)/no	
Comments:	**Experiments 14030A and 15190A**						

The hira 12M trigger delay was reduced by 1 μs.

ScalerDisplay

Title: Sn112 Ca40 140MeV/u, neutron uBall, hira uBall coin. reduced hira delay 1us Elapsed Run Time: 0 00:25:14

Run: 2206
State: Active

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]		
OR_T_VW		12946.50	19596913			
OR_B_VW		26316.00	39603449			
OR_T_OR_B_VW		9117.50	13668902			
GATE_VW		18960.00	28582049			
FCLR_VW		17944.50	27111086			
NW_Raw_Trig		30718.00	46195430			
NW_Live_Trig		18960.00	28582035			
NW_Fast_Clear		17944.50	27111094			
NW_Common_Gate		0.00	0			
FART_OR		276740.50	408958831			
MASTER_TRG		2297.50	3309405			
NW_Live_Trig	NW_Raw_Trig	18960.00	30718 28582035	4619	0.62	0.62

Enable Alarms

Run 2208 start: 22:36
stop: 23:08

Run 2209 start: 23:09
stop: 23:41

Run 2210 start: 23:41
stop: 00:29

Run 2211 start: 00:29
stop: 01:04

Run 2212, 2213 (Junk) Start = 01:06
Stop = 01:15

Scribe Name	Genie			**others**	Zibi, Jong Won, Jung Woo				
Run #	2214	**Date**	02/14	**Start**	02:14		**Stop**	~~02:01~~ 02:30	
Type	(Data)	calib	debug	alpha		pulser	source		junk
Beam: 40Ca		**Energy (MeV/u)**		(140)		50	35		
Target	viewer	blank	58Ni	64Ni		(112Sn)	124Sn		CH2
Trigger	HiRA	NW/VW	(Merged)	Trigger		Coincidence	NW+uBall HiRA+uBall		
FA	(On)/Off	**Microball**	off	multiplicity		3			
NW HV file		Co60	(15 MeV)	25 MeV		threshold	: 2MeV		file.
Shadow Bar		A	B	C		D	(none)		
Live Time		**master**		**clears**			**CsI rates**		
Check HiRA Voltage/current (once every 4 hrs)							(yes)/no		
Check coolant level (whenever the vault is open)							yes/(no)		
print scalers; save online spectra							Yes/(no)		
check summary spectra (once a hour)							(Yes)/no		
Comments:	**Experiments 14030A and 15190A**								
Short run during the change of FA threshold.									

FA

1) Adjusted thresholds so each wedge fires ~ 4k/s & FA17 & FA18 fire ~ 8k/sec

2) Change HV

FA9	800	→	1000 kV
FA17	1000	→	950 V
FA18	1000	→	750 V
DSS	1400	→	1200 V

~~The change applies to~~

The changes in FA are applied from Run 2215. All the others the same (See runlog webpage as well)

Run 2215 Start = 02:43
Stop = 03:18

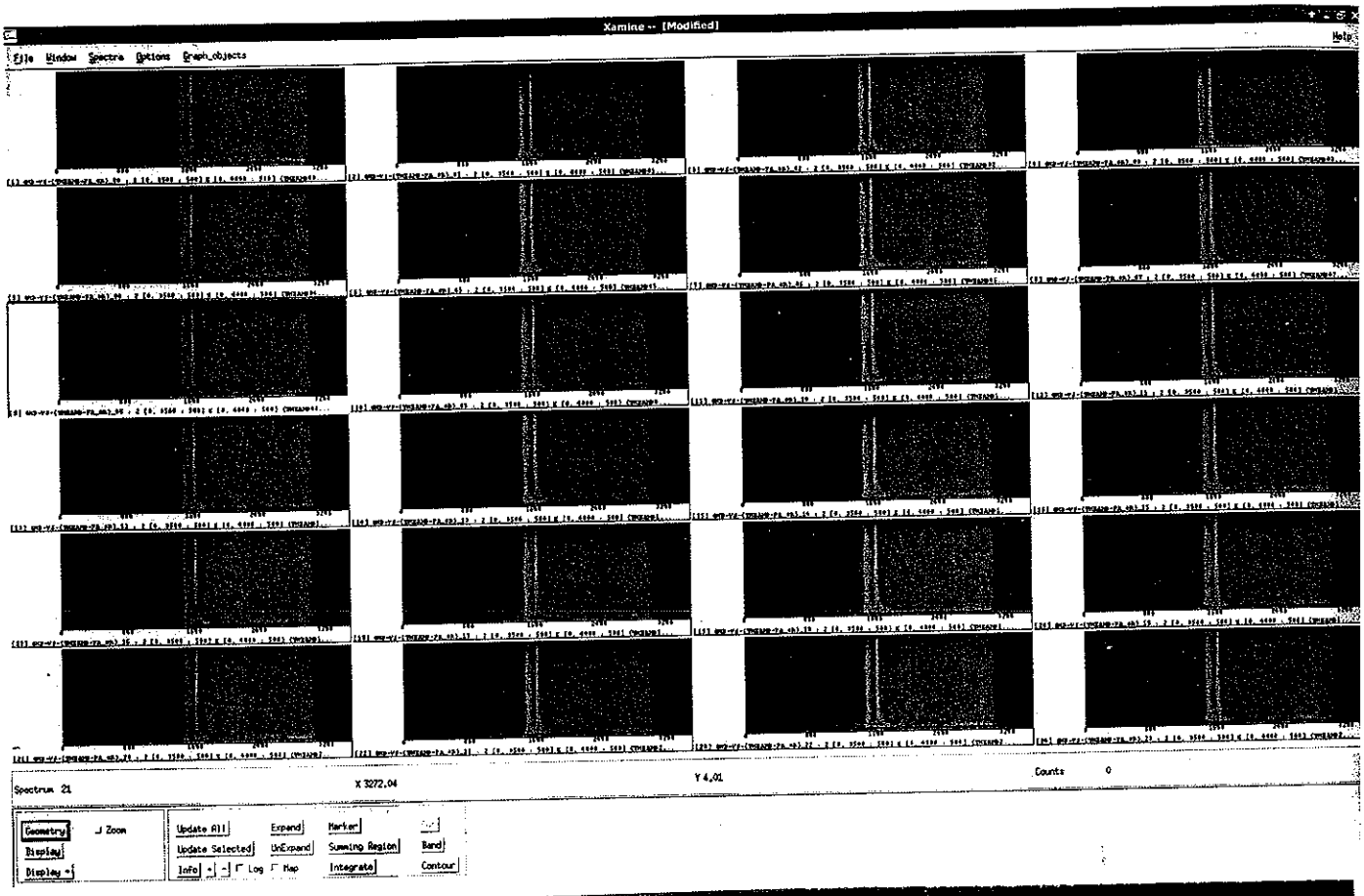
Run 2216 Start = 03:19
Stop = 03:49

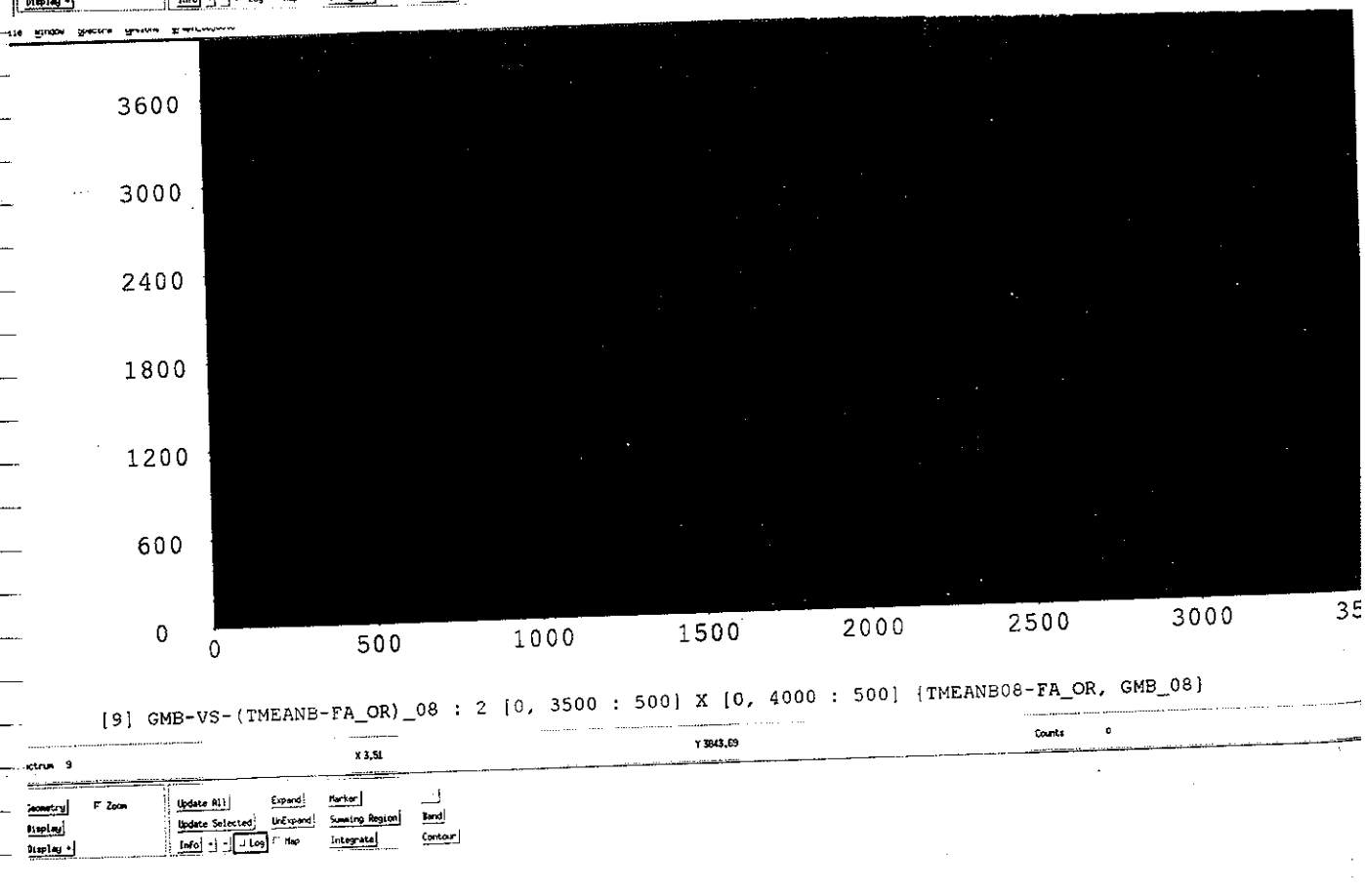
Run 2217 Start = 03:50
Stop = 04:22

Run 2218 Start = 04:22
Stop = 04:55

92

Geo. Mean vs. Tmean - FA_OR (2/13 runs)





Run 2219 Start = 04:56
Stop = 05:27

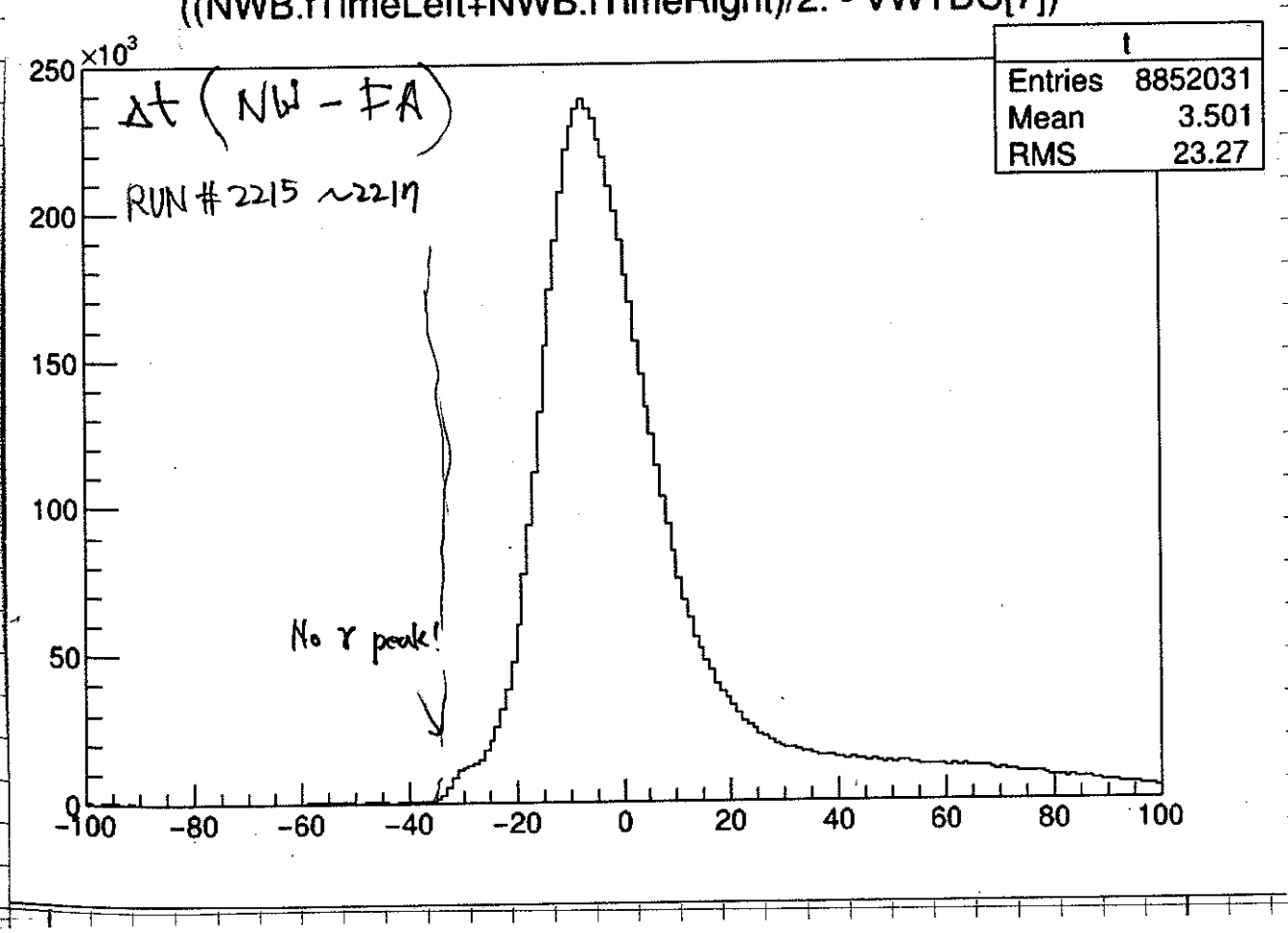
Run 2220 Start = 05:27
Stop = 05:45

Lower the threshold of FA 17 & 18 so the rate increased by the factor of 2 (2ibi)

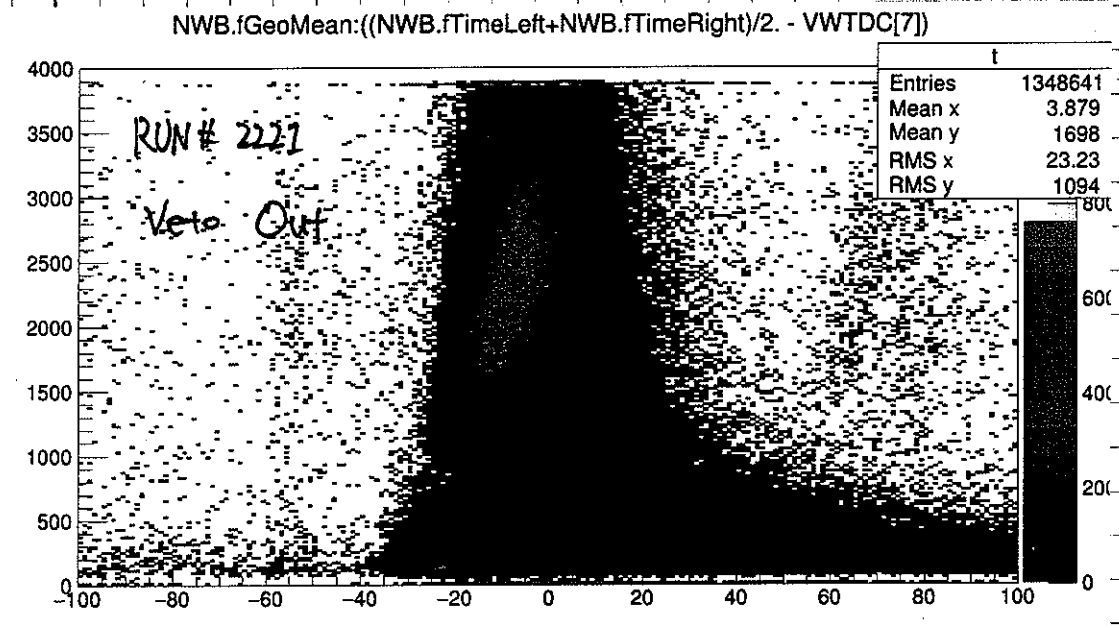
Run 2221 Start = 05:49
Stop = 06:09

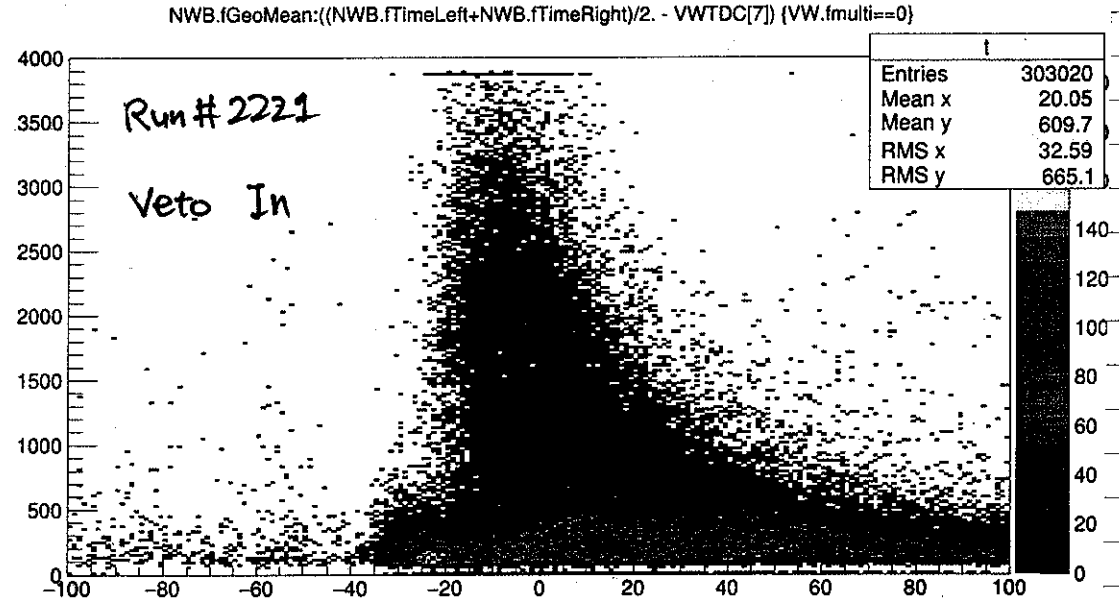
Run 2222 Start = 06:09
(Maybe ok except the last split file) Stop = 06:36

Si ✓ (HV is down)



Run 2223 Start = 06:39
Stop = 07:09





Run 2224 Start = 07:09
Stop = 07:40

Run 2225 Start = 07:41
Stop = 08:26

RUN 2226 Start = 08:30
Stop = 09:16

NOTE = uBall ring 8 det 4 is working again
threshold decreased to normal values.

RUN 2227 Start = 09:16
Stop = 09:55

ScalerDisplay

Title: Sn112 Ca40 140MeV/u, neutron uBall, hira uBall coin.
Run: 2227
State: Active
Elapsed Run Time: 0 00:01:34

Source ID	Update Interval
0	2.0
1	2.0

scalersNW | scalersHIRA | scalersFA

ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
OR_T_VW		12792.00	1106455	
OR_B_VW		26475.50	2283277	
OR_T_OR_B_VW		9118.00	796051	
GATE_VW		19168.50	1647640	
FCLR_VW		18171.50	1561767	
NW_Raw_Trig		31314.50	3358026	
NW_Live_Trig		19168.50	1647640	
NW_Fast_Clear		18171.50	1561767	
NW_Common_Gate		0.00	0	
FART_OR		70822.50	6074771	
MASTER_TRG		2252.50	193739	
NW_Live_Trig	NW_Raw_Trig	19168.50 313	1647640 335	0.61 0.49

Enable Alarms

RUN 2228 Start 09:55
Stop 10:35

Run 2229 Junk

Scribe Name Kyle		others					
Run # ~~2230~~ 2230		Date 2/14/18		Start 10:36		Stop 11:07	
Type	Data	calib	debug	alpha	pulser	source	junk
Beam: ~~40Ca~~		Energy (MeV/u)		140	50	35	
Target	viewer	blank	58Ni	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	Merged				
FA	On/Off	Microball	off	multiplicity	3		
NW HV file		Co60	15 MeV	25 MeV	2MeV thresh		
Shadow Bar		A	B	C	D	none	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	Experiments 14030A and 15190A						
Changed Microball ADCs to preserve overflow bit							

Run 2231 start 11:10
stop 11:15

We removed 1 ns of delay from the HiRA XLM trigger.

Run 2232 Start 11:22 Stop 12:06 pm

Run 2233 start 12:07 Stop 12:10 pm

RUN 2235 2:44:15 RUN TIME

"FART STUFF" STOP AT 6:24 P.M.

Added RF to TDC (H.RA) ch 54. Changed FA Gains and thresholds

Run 2234: start 19:46 → RUN was not stopped when beam was stopped

RUN	2237	Start: 19:30	Stop: 20:04	NO
Run	2238	Start: 20:04	Stop: 20:16	VW
Run	2239	Start: 20:29	Stop: 20:35	
Run	2240	START: 21:11	Stop: 21:19	
~~RUN~~	~~2241~~	START	STOP	

21:44 Key is back!

RUN	2241	START: 21:44	STOP: 22:15
RUN	2242	START: 22:16	STOP: 22:48
RUN	2243	START: 22:48	STOP: 23:20

ADDED 0.5 μs to NWTDC & VWTDC window because MB + HiKA trig was off the scale

ScalerDisplay #2

98

Title: Sn112 Ca40 140MeV/u, neutron uBall, hira uBall coin.
Run: 2241
State: Active

Elapsed Run Time: 0 00:14:10

Source ID	Update Interval
1	2.0
0	2.0

scalersNW | scalersHIRA | scalersFA

ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
OR_T_VW		15021.00	11905852	
OR_B_VW		8202.00	6469336	
OR_T_OR_B_VW		10814.00	8585670	
GATE_VW		19910.00	16146090	
FCLR_VW		19079.50	15617087	
NW_Raw_Trig		30632.50	23321225	
NW_Live_Trig		19910.00	16146090	
NW_Fast_Clear		19079.50	15617091	
NW_Common_Gate		0.00	0	
FART_OR		18361.00	11726113	
MASTER_TRG		1882.50	1194502	
NW_Live_Trig	NW_Raw_Trig	19910.00 306	16146090 23:	0.65 0.69

RUN# 2241

Enable Alarms

~~RUN~~	RUN 2244	START: 23:13	STOP: 23:40
	RUN 2245	START: 23:40	STOP: 00:18
	RUN 2246	START: 00:19	STOP: 00:56
	RUN 2247	START: 00:56	STOP: 1:44
	RUN 2248	START: 1:45	STOP: 02:24
	NW thresholds are lowered to 1 MeV		
	RUN 2249	START: 02:25	STOP: 3:07

RUN 2250 START: 3:08 STOP 3:37

RUN 2251 START: 3:38 STOP 4:19

NW HV FILE IS Co60 not 15 MeV as marked on all recent run sheets. E.

RUN 2252 START 4:20 STOP 5:05

RUN 2253 START 5:06 STOP 5:44

RUN 2254 START 5:44 STOP 6:30

RUN 2255 START 6:31 STOP 6:38

02/15/2018: 6:50 AM

Switch to blank target

1MeV threshold for NW

Run 2256 (blank target) start: 6:50 stop: 7:15.

Scribe Name Kuan Zhu		**others** JungWon, Jung Woo					
Run # 2256		**Date** 02/15/2018		**Start** 6:50		**Stop**	
Type	Data	calib	debug	alpha	pulser	source	junk
Beam: 40Ca		**Energy (MeV/u)**		140	50	35	
Target	viewer	blank	58Ni	64Ni	112Sn	124Sn	CH2
Trigger	HiRA	NW/VW	Merged	NW+uBall HiRA+uBall			
FA	On/Off	**Microball**	off	multiplicity 3			
NW HV file		Co60	15 MeV	25 MeV	threshold: 1MeV file		
Shadow Bar		A	B	C	D	none	
Live Time		**master**		**clears**		**CsI rates**	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	**Experiments 14030A and 15190A**						
Still many stuff coming in with blank target.							

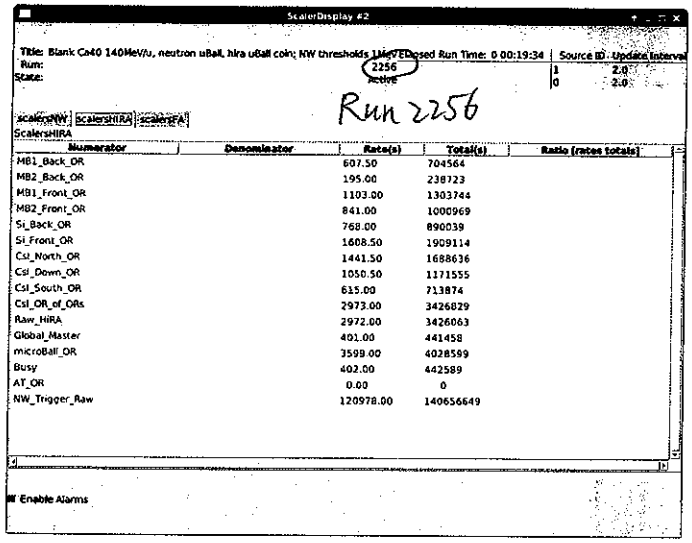
Kuan, Why do you do that ??

7:16 AM, increased NW threshold to 2 MeV files.

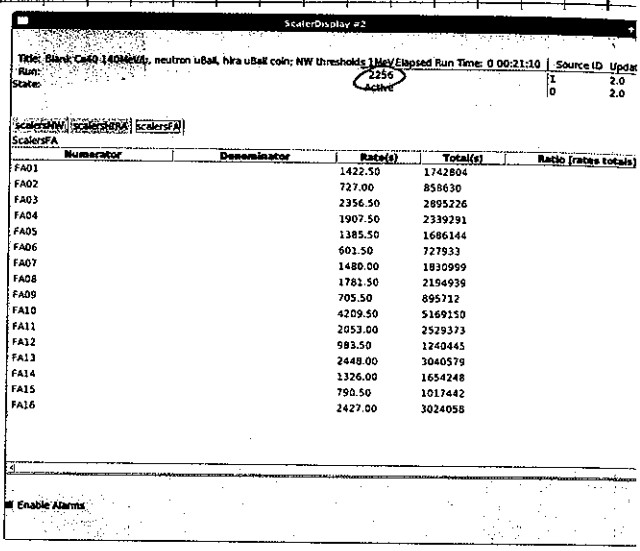
Busy

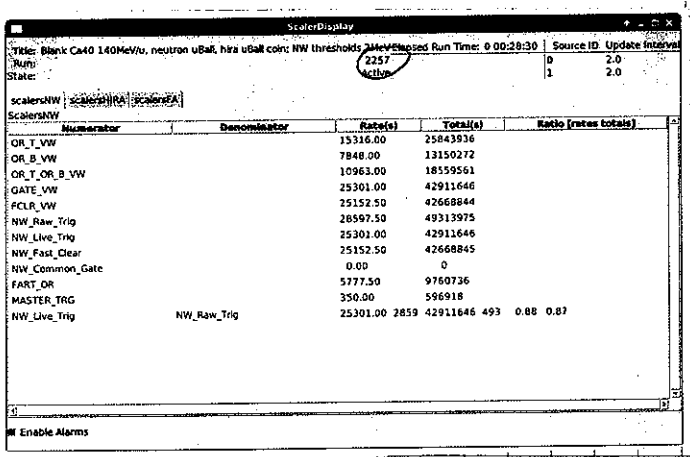
Run 2257 start: 7:16 stop: 7:55

(Blank target; 2 MeV for NW)



Run 2256





Because we used to take data with 2 MeV threshold. To compare, blank target data should also be taken with 2 MeV threshold.

Kuan

Forward Array Mapping

Det.	Wedge	Voltage	FA BOX	Disc	CAEN HV Ch#	QDC channel	VW TDC channel
1	01	1000	FA01/0	D0/00	0.00	Q09/00	32
2	02	1000	FA01/1	D0/01	0.01	Q09/01	33
3	03	1000	FA01/2	D0/02	0.02	Q09/02	34
4	04	1000	FA01/3	D0/03	0.03	Q09/03	35
5	05	1000	FA01/4	D0/04	0.04	Q09/04	36
6	06	1000	FA01/5	D0/05	0.05	Q09/05	37
7	07	1000	FA01/6	D0/06	0.06	Q09/06	38
8	08	1000	FA01/7	D0/07	0.07	Q09/07	39
9	09	1000	FA02/0	D0/08	0.08	Q09/08	40
10	10	1000	FA02/1	D0/09	0.09	Q09/09	41
11	11	1000	FA02/2	D0/10	0.10	Q09/10	42
12	12	1000	FA02/3	D0/11	0.11	Q09/11	43
13	13	1000	FA02/4	D0/12	1.00	Q09/12	44
14	14	1000	FA02/5	D0/13	1.01	Q09/13	45
15	15	1000	FA02/6	D0/14	1.02	Q09/14	46
16	16	1000	FA02/7	D0/15	1.03	Q09/15	47
17	17	800	FA03/0	D1/14	1.04	Q09/16	62
18	18	1000	FA03/1	D1/15	1.05	Q09/17	63

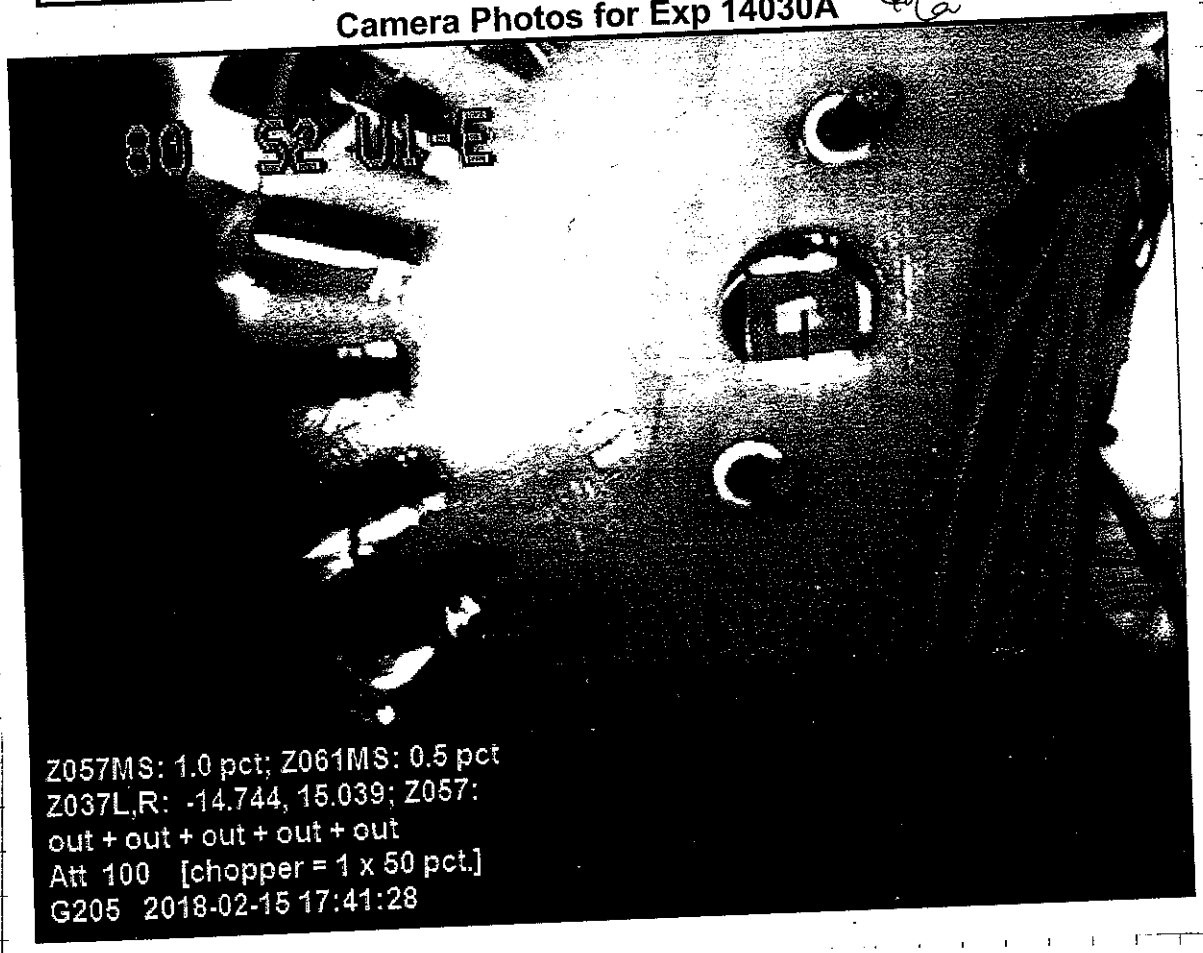
2/15/18 18:09

Shadow bars are in Place, blank target and DSP removed. Tom has tuned the 140 MeV/A 40Ar.

Scribe Name Ky			others				
Run # 2258	Date 2/15/18		Start 18:26		Stop 18:48		
Type (Data)	calib	debug	alpha	pulser	source	junk	
Beam: (40Ca)	Energy (MeV/u)		(140)	50	35		
Target viewer	(blank)	58Ni	64Ni	112Sn	124Sn	CH2	
Trigger HiRA	NW/VW	(Merged)					
FA (On)/Off	Microball	off (on)	multiplicity 3				
NW HV file	(Co60)	15 MeV	25 MeV	Disc (threshold)		1 MeV	
Shadow Bar	(A)	(B)	(C)	(D)	none (should be)	2 MeV	
Live Time	master		clears		CsI rates		
Check HiRA Voltage/current (once every 4 hrs)					(yes)/no		
Check coolant level (whenever the vault is open)					(yes)/no		
print scalers; save online spectra					Yes/no		
check summary spectra (once a hour)					Yes/no		
Comments:	Experiments 14030A and 15190A						

First run with new tune at 140 MeV/A 40Ca
550 ~~pnA~~ epA on beam dump

Camera Photos for Exp 14030A 40Ca

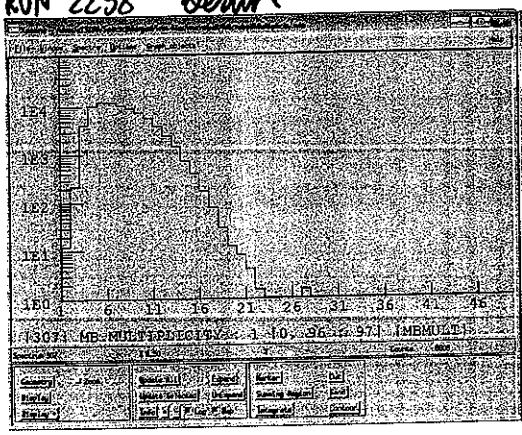


Scribe Name	Kyle		others				
Run #	2259	Date	2/15/18	Start	19:02	Stop	19:37
Type	(Data)	calib	debug	alpha	pulser	source	junk
Beam:	(40Ca)	Energy (MeV/u)		(140)	50	35	
Target	viewer	blank	58Ni	64Ni	(112Sn)	124Sn	CH2
Trigger	HiRA	NW/VW	~~Merged~~				
FA	~~On/Off~~	Microball	off (on)	multiplicity	3		
NW HV file		(Co60)	15 MeV	25 MeV			
Shadow Bar		(A)	(B)	(C)	(D)	none	
Live Time		master		clears		CsI rates	
Check HiRA Voltage/current (once every 4 hrs)						(yes/no)	
Check coolant level (whenever the vault is open)						(yes/no)	
print scalers; save online spectra						Yes/(no)	
check summary spectra (once a hour)						Yes/(no)	
Comments:	Experiments 14030A and 15190A						
Only target change							

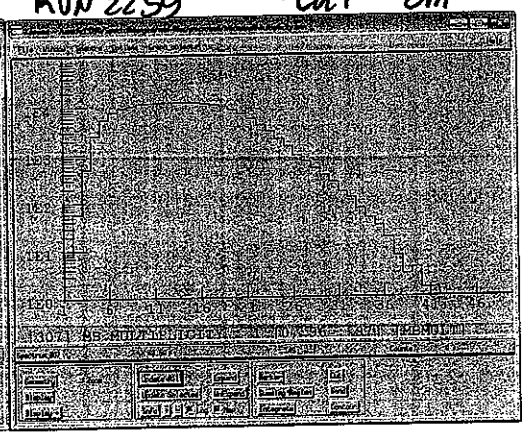
RUN 2260 Same as RUN 2259
Start: 19:38 STOP: 19:44 (operator took beam away)

μBall multiplicity

RUN 2258 blank



RUN 2259 40Ca + 112Sn



RUN 2261 : restart after ~~reboot~~ beam stop

Start: 21:07 Stop: 21:40

beam intensity: G2378-C 200×10^{-12}
Can increase beam by 50%

RUN 2262 Same as before
Start: 21:48 Stop: 22:11

Increase beam intensity to 300×10^{-12}

RUN 2263 : Same as before

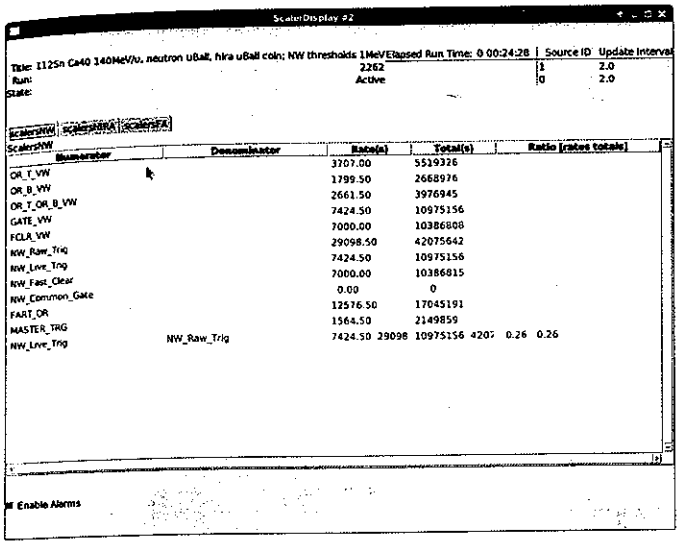
Start 22:11 Stop 23:04

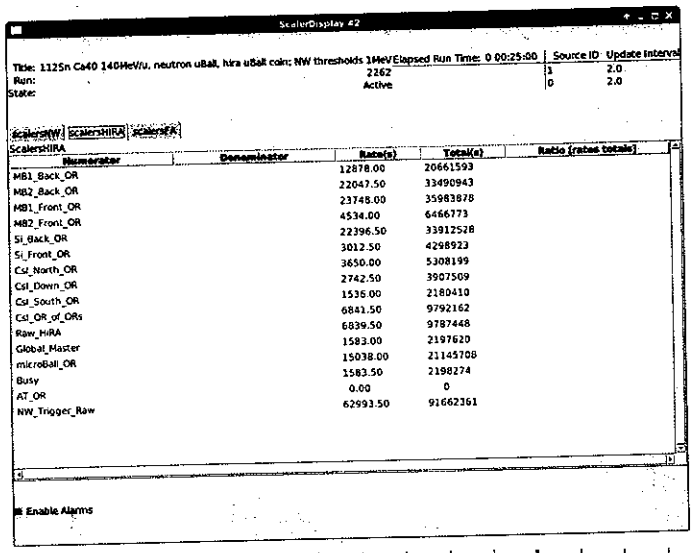
RUN 2264 Same as before

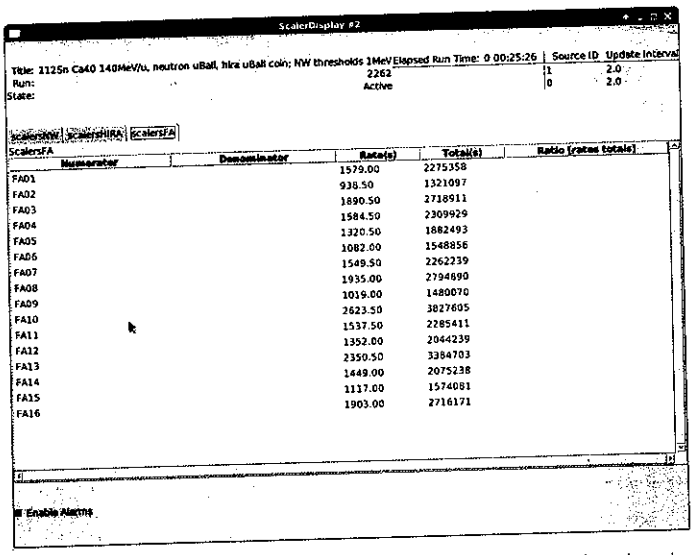
Start 23:05 stop: 23:31

Looked at trigger. We are running
H.RA.uBall ~~H.RA~~ NW.uBall + HiRA single

The HiRA singles rate is 1.06 KHz
H.RA.uBall rate is 753 Hz
uBall. N wall rate is 344 Hz
Mcstera rate 1.4 KHz







Run 2262
n-wall performance
NWB PSD
Barrel

1	C	— barely
2	C	
3	D	— bad
4	C	
5	A	good
6	A	
7	A	
8	A	
9	C	
10	C	
11	B	OK.
12	AB	
13	AB	
14	D	
15	D	
16	C	
17	D	
18	A	
19	F	
20	C	
21	D	
22	B	
23	BC	
24	AB	

Scribe Name Justin S.			**others** OM				
Run # 2265	**Date**		**Start** 23:46		**Stop** ~~2265~~ 23:56		
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam (40Ca)	**Energy (MeV/u)**		(140)	56	39		
Target	viewer	blank	58Ni(4.9)	(64Ni(5.3))	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence)		**FA**	(On)/Off	**uball mult.** 3	
Scalers	Gobal M.	1600	**CsI OR**	~~7000~~	~~2.1K~~	~~2.7K~~	
NW HV file	(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	(2 MeV)	
Shadow Bar	(A+B+C+D)	none		**G238F-C**	2.6×10^{-12}	**HiRA trigger** 6.7K	
G. Master	**EF_OR**	21K	**EB_OR**	2.7K	**CsI_OR**	7K	
Check HiRA Voltage/current (once every 4 hrs)					yes/no		
Check coolant level (whenever the vault is open)					yes/no		
print scalers; save online spectra; check summary spectra (on					Yes/no		
check summary spectra (once a hour)					Yes/no		
Comments:	https://groups.nscl.msu.edu/hira/runlog/						
μBall tails missing for all the channels.							

Scribe Name Justin S			**others** Sean Sweaty				
Run # 2266		**Date**		**Start** 00:12		**Stop**	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: (40Ca)		**Energy (MeV/u)**		(140)	56	39	
Target	viewer	blank	(58Ni(4.9))	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence)		**FA**	(On)/Off	**uball mult.** 3	
Scalers	Gobal M.	1200	**CsI OR**				
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	4 MeV	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**		**HiRA trigger**	
G. Master		**EF_OR**	~~1.3K~~ 3.1K	**EB_OR**	27K	**CsI_OR**	5.7K
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		https://groups.nscl.msu.edu/hira/runlog/					

DOWNSCALE FACTOR ON HIRA CHANGED to 20

uBall Tails restored. Gate on Tail ADCs delayed of 1 μs.

RUN 2266
Start: 1:16
Stop: 1:27
Same as before

RUN 2266 7
START 1:16 STOP 1:27

RUN 2268
START 1:29 STOP: 1:59

Scribe Name	Justin S		others	Sean			
Run #	2268	Date		Start 1:29		Stop	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		Energy (MeV/u)		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		FA	On/Off	uball mult. 3	
Scalers	Gobal M.	1300	CsI OR				
NW HV file		Co60	15 MeV	25 MeV	Thres. File	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	G238F-C	3.4x10^-12	HiRA trigger	
G. Master		EF_OR	2.8 K	EB_OR	26 K	CsI_OR	6.8K
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		https://groups.nscl.msu.edu/hira/runlog/					
Changed to 1MeV thresh. File							

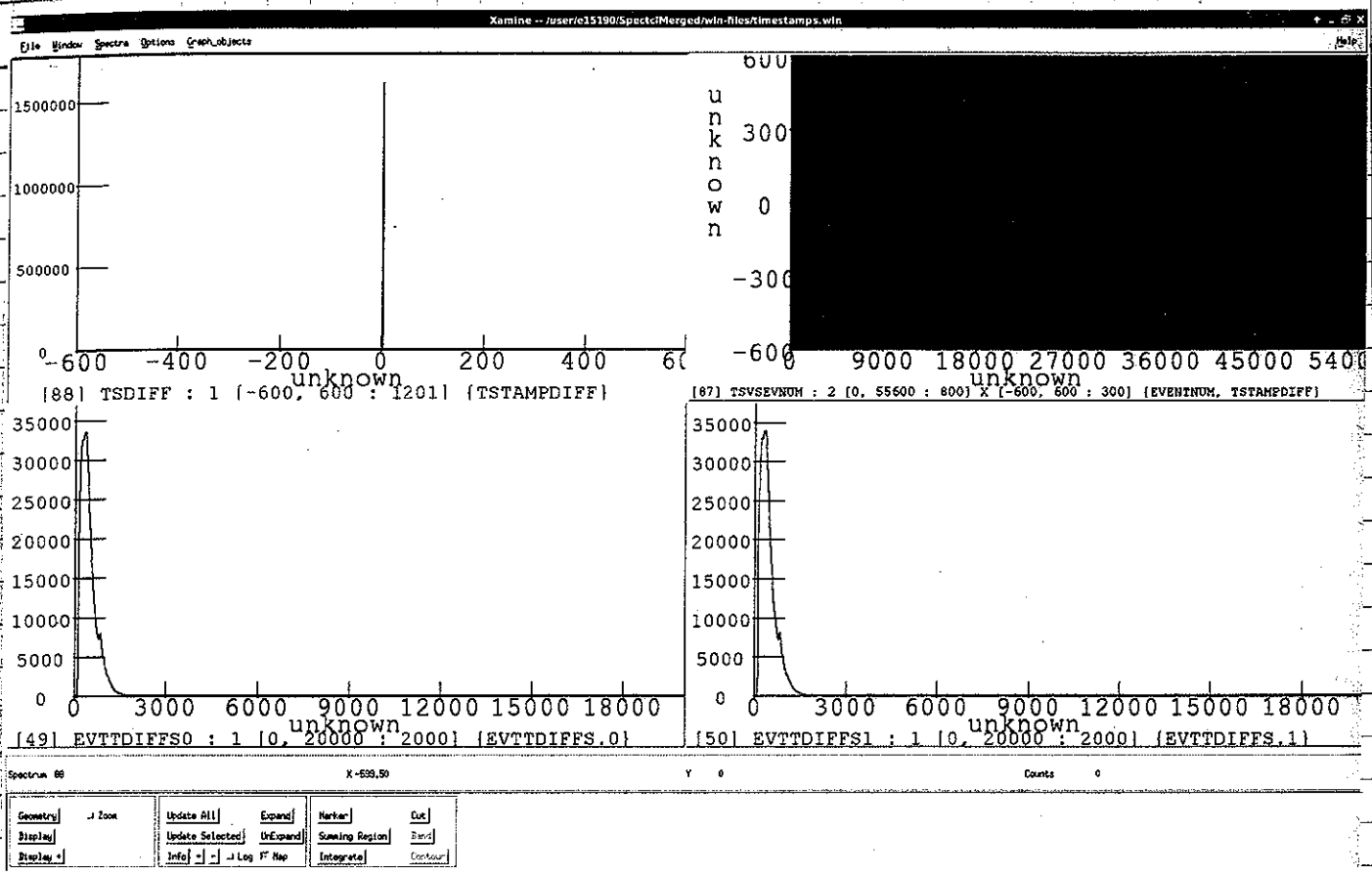
Bill unplugged RF? no something connected to the beeper for count rate

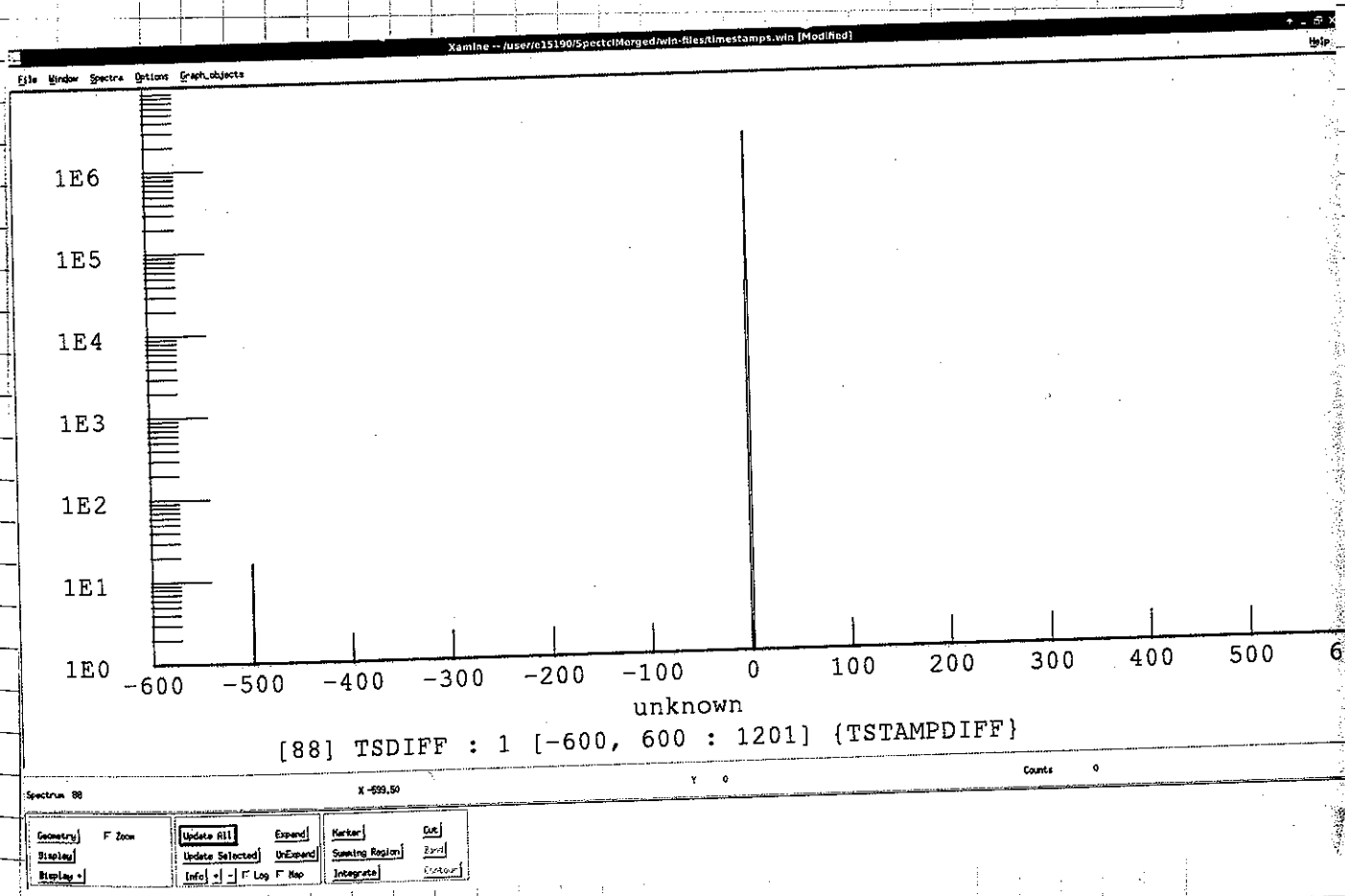
RUN 2269

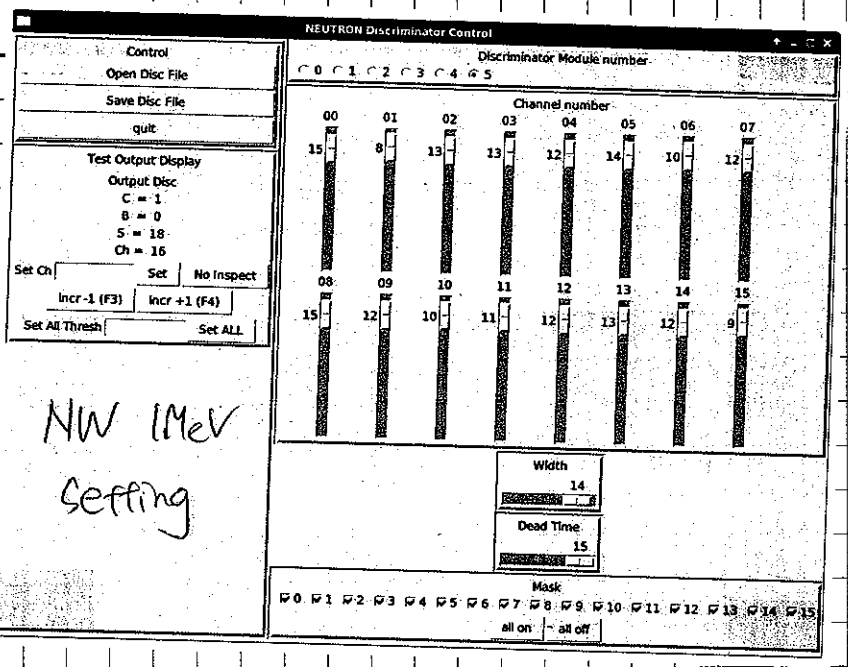
START: 2:00 STOP 2:34

took out CsI that was patched out

1- only


Xamine -- /user/e15190/SpectclMerged/win-files/timestamps.win
File Window Spectra Options Graph_objects
Help
1500000
1000000
500000
0
-600 -400 -200 0 200 400 60
unknown
[88] TSDIFF : 1 [-600, 600 : 1201] {TSTAMPDIFF}
unknown
600
300
0
-300
-600
9000 18000 27000 36000 45000 540
unknown
[87] TSVSEVNUM : 2 [0, 55600 : 800] X [-600, 600 : 300] {EVENINUM, TSTAMPDIFF}
35000
30000
25000
20000
15000
10000
5000
0
0 3000 6000 9000 12000 15000 18000
unknown
[49] EVTTDIFFS0 : 1 [0, 20000 : 2000] {EVTTDIFFS.0}
[50] EVTTDIFFS1 : 1 [0, 20000 : 2000] {EVTTDIFFS.1}
Spectrum 88
X -599.50
Y 0
Counts 0
Geometry
Zoom
Display
Display +
Update All
Expand
Update Selected
UnExpand
Info
Log
Map
Marker
Cut
Summing Region
Band
Integrate
Contour


Xamine -- /user/e15190/SpectclMerged/win-files/timestamps.win [Modified]
File Window Spectra Options Graph_objects
Help
1E6
1E5
1E4
1E3
1E2
1E1
1E0
-600 -500 -400 -300 -200 -100 0 100 200 300 400 500 60
unknown
[88] TSDIFF : 1 [-600, 600 : 1201] {TSTAMPDIFF}
Spectrum 88
X -599.50
Y 0
Counts 0
Geometry
Zoom
Display
Display +
Update All
Expand
Update Selected
UnExpand
Info
Log
Map
Marker
Cut
Summing Region
Band
Integrate
Contour



NW 1MeV setting

02/16/2018: the threshold file of 1MeV was loaded correctly K.Z.

Scribe Name Justin S			**others** Sean				
Run # 2270		**Date**		**Start** 2:45		**Stop** 3:18	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		**FA**	On/Off	**uball mult.**	3
Scalers	Gobal M.	1150	**CsI OR**				
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	**G238F-C**	300×10^{-18}	**HiRA trigger**	
G. Master		**EF_OR**	3500	**EB_OR**	27K	**CsI_OR**	5000
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						
Put in the uBall downscale at Downscale factor of 300							

3:18 2/15/18 Remove Shadow bars

Checked the dead time using the CSI as
CSI 1 and CSI 2. Both were double counting ~~at about #~~

I reshaped them and it didn't make any difference to the livetime.

In 10 sec.	CsI 2 on	27067 raw 9817 live		live time = 36%
	CSI 3 OR	13718 raw 11976 live		livetime = 38%

Put in the ~~II~~ Ball DNSC with a factor of 300

didnt delay it So it is starting the trigger a little earlier, This would be about

Scribe Name Sean			others Justin S			
Run # 2271		Date		Start 3:27		Stop 3:42
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		Energy (MeV/u)		(140)	56	39	
Target	viewer	(blank)	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence)		FA	(On)/Off	uball mult. 3	
Scalers	Gobal M.	170	CsI OR				
NW HV file		Co60	15 MeV	25 MeV	Thres. File	(1 MeV)	2 MeV
Shadow Bar		A+B+C+D	(none)	G238F-C	260e-12	HiRA trigger	
G. Master		EF_OR	4000	EB_OR	44000	CsI_OR	2000
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		https://groups.nscl.msu.edu/hira/runlog/					

15 minute run

Scribe Name Sean			**others** Justin S				
Run # 2272		**Date** 2/15/18		**Start** 3:50		**Stop** 4:05	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		~~Merged (15190)~~		other
Beam: 40Ca		**Energy (MeV/u)**		(140)	56	39	
Target	viewer	blank	(58Ni(4.9))	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(Coincidence)		**FA**	(On)/Off	**uball mult.**	
Scalers	Gobal M.	1200	**CsI OR**				
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		A+B+C+D	(none)	**G238F-C**	350×10^{-12}	**HiRA trigger**	
G. Master		**EF_OR**	3300	**EB_OR**	26 K	**CsI_OR**	6 K
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						
15 minute run with target in							

Count rate was varying but best estimate was 3.4 kHz (dead time corrected) with the 58Ni target. Master rate = 1.3 kHz with 37% live

Blank frame rate = 160-180 Hz at 80% live

this combination is ~5-6%

Run 2273
Start = 4:09
Stop = 4:39
- Normal run beam parameters as run 2272

RUN 2274
START: 4:39
STOP: 5:09

RUN 2275
START 5:10 STOP 5:40

RUN 2276

START 5:40 STOP: 6:10

RUN 2277

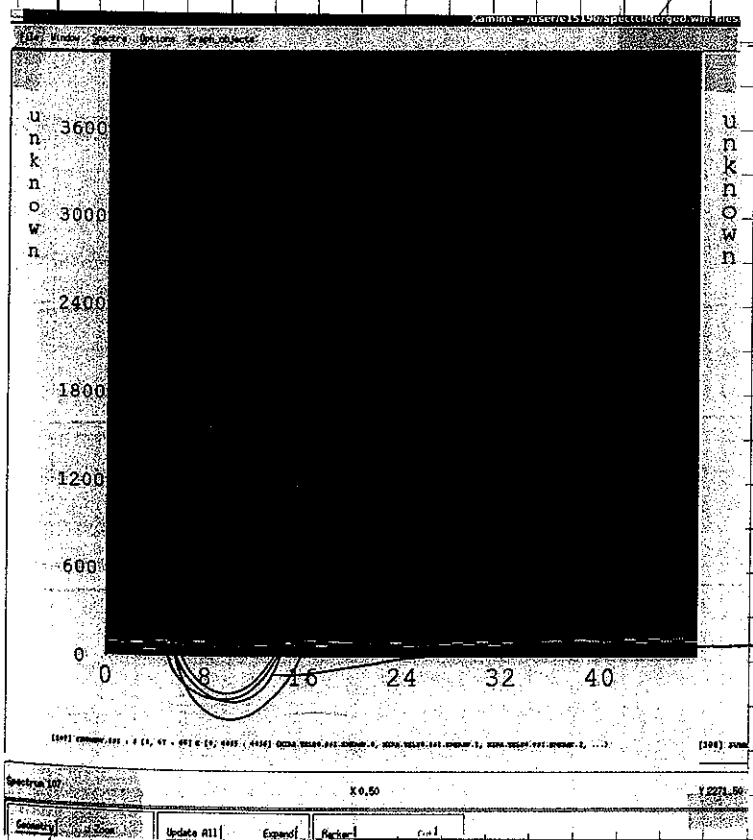
START 6:10 STOP 6:41

RUN 2278
START 6:42 Stop 7:11

Run 2279

Start: 7:12 Stop= 7:30

Csf 0 in Ele 2 went out



Dead Csf

Noticed run 2279

Run 2280

Start = 7:32 Stop = 7:54

Tried restarting CsI cosmic program, crystal E fill not there

Put in HiRA downscaler (20)

11:00 am 02/16/2018

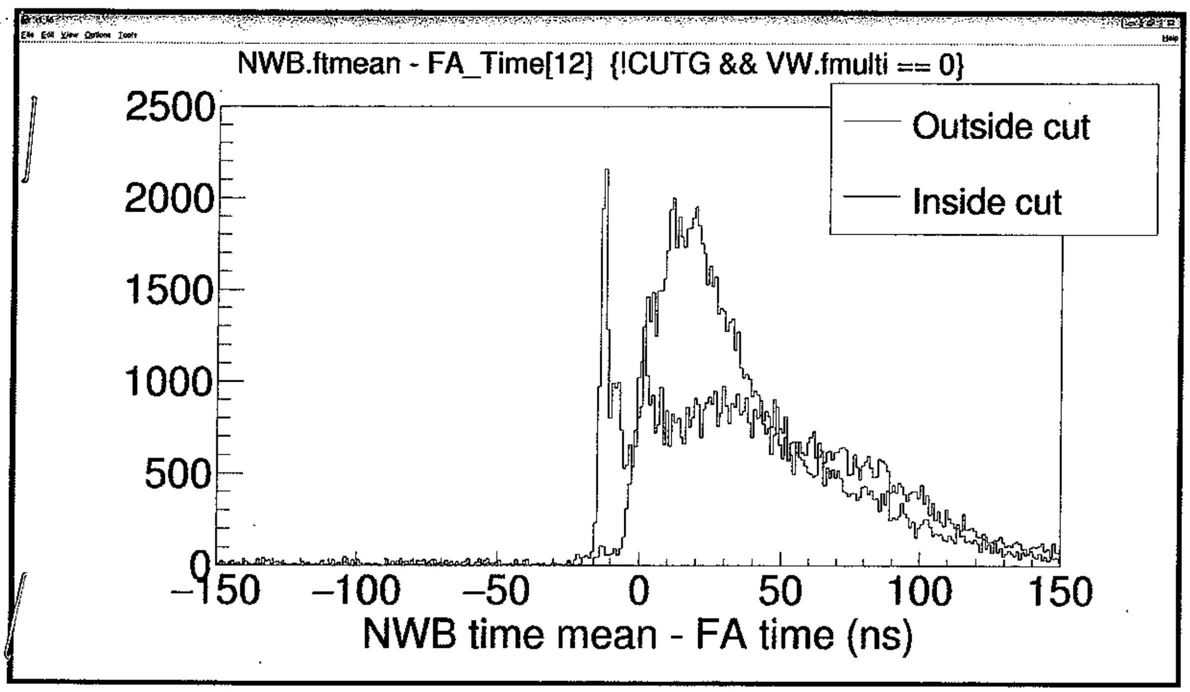
Electricity Power Overloaded, everything on NW & VW Rack were turned off and back on

The things we (Om & Kuan) did after then:

VW { 1. Turn on VW voltage
2. Turn on VW CFD (loaded VWthreshold6.dis and disabled panel #2 & #5)

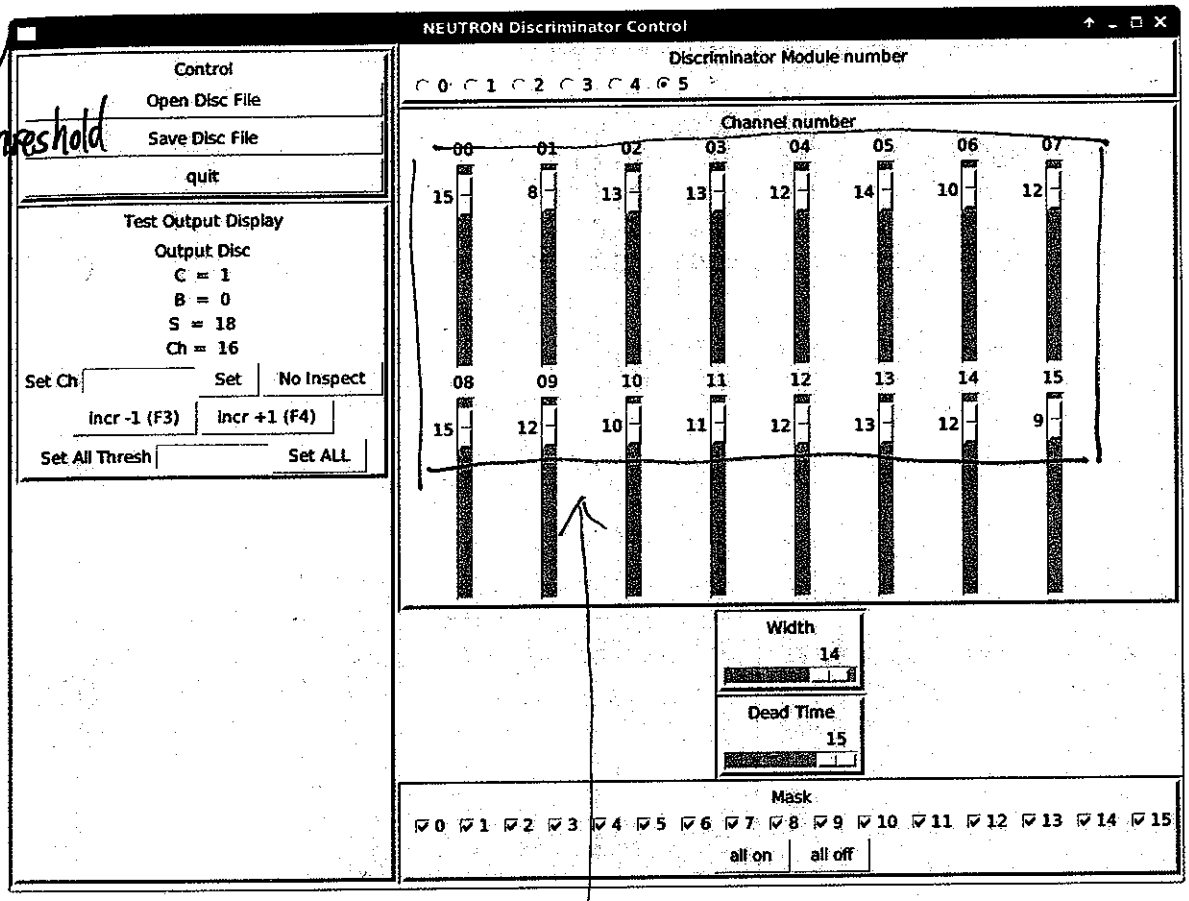
NW { 3. Turn on NW voltage (Co60 HV file)
4 Turn on NW GDG
5 Turn on NW CFD (1MeV file are loaded)

FA 6. Turn on CFD 1 & CFD 2 for FA



How to check NW threshold:

1 MeV NW threshold



1 MeV NW threshold

emacs@steelhead.nscl.msu.edu

File Edit Options Buffers Tools Help

Save Undo

```
6
0     1     3     16
25    23    24    13
22    40    20    38
22    11    27    23
29    32    17    19
0     1     6     16
19    15    13    26
38    29    34    31
30    30    38    16
30    25    21    30
0     1     9     16
22    16    32    19
28    19    24    9
29    37    23    20
18    21    24    22
0     1     12    16
4     12    8     16
10    12    10    5
13    12    14    12
13    14    13    10
0     1     15    16
10    19    12    11
10    14    13    10
2     12    11    13
12    11    16    5
0     1     18    16
15    8     13    13
12    14    10    12
15    12    10    11
12    13    12    9
```

-:--- e16042_NEUT_NWAandNWB_1to24_B_1MeV_215 All L1

For information about GNU Emacs and the GNU system, ty

emacs@steelhead.nscl.msu.edu

File Edit Options Buffers Tools Help

Save Undo

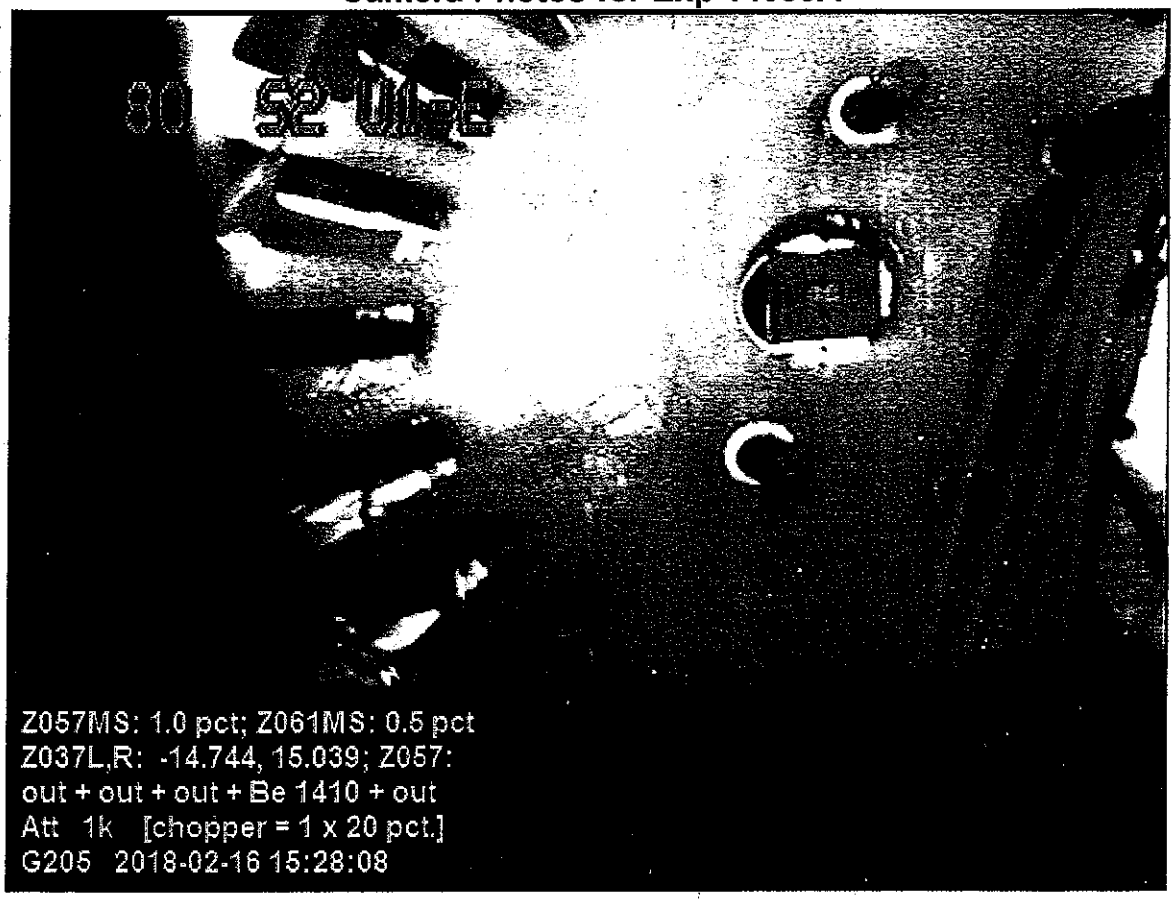
```
6
0     1     3     16
44    49    50    35
48    75    37    71
40    36    56    45
55    67    34    37
0     1     6     16
36    30    26    47
49    55    65    58
61    53    67    32
62    51    42    60
0     1     9     16
43    36    65    37
57    41    46    26
65    68    47    39
39    44    50    44
0     1     12    16
8     17    15    21
23    19    14    10
32    22    31    25
20    32    28    20
0     1     15    16
30    43    27    26
23    33    26    18
7     19    24    17
24    17    28    9
0     1     18    16
33    22    29    32
17    29    23    21
35    25    20    23
26    31    28    21
```

2 MeV NW threshold

-:--- e16042_NEUT_NWAandNWB_1to24_B_2MeV_215 All L1

For information about GNU Emacs and the GNU system, t

Camera Photos for Exp 14030A



Scribe Name Daniele			**others** Juan, Zibi, Om, Betty, Tommy				
Run # 2281		**Date** 02/16/2018		**Start** 4:20 p.m.		**Stop** 5:03 p.m.	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		**FA**	On/Off	**uball mult.** >3	
Scalers	Gobal M.		**CsI OR**				
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	**G238F-C**		**HiRA trigger**	
G. Master		**EF_OR**		**EB_OR**		**CsI_OR**	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						
uBall mult trig rate ~ 5 KHz							

RUN 2282 : same as before
Start : 17:03 Stop: 17:28

RUN 2283 : same as before
Start : 17:31 Stop: 18:01

RUN 2284 : blank target. essentially nothing on the blank frame!!

RUN 2285 : same as 2283 again ^{112}Sn target
Start : 19:09 Stop: 19:14

Run 2286: TURNED OFF all Si QRs
to test effect on deadtime
Conclusion: still very dead (livetime ~ 30%)
Junk!

RUN 2287: NO HiRA. High noise level in the discriminators. We turned off all the discriminators and we one temporary running without HiRA.
Junk !!!

WARNING: the HiRA single trigger has been unplugged.

RUN 2288 : Junk!

Scribe Name Om			**others** Zibi, Betty				
Run # 2289		**Date** 02/16/2018		**Start** 21:17		**Stop** 21:50	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	(112Sn(6.1))	CH2(10u)
Trigger	singles	(coincidence)		**FA**	(On)/Off	**uball mult.**	3
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		A+B+C+D	(none)	**G238F-C**	590 Pico	**G. Master**	3K
HiRA trigger		**EF_OR**	0	**EB_OR**	0	**CsI_OR**	6.7K
Any Downscalers?							
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra; check summary spectra (one						Yes/(no)	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

RUN 2290 Same as 2289
Start: 21:50 Stop 22:26

Run 2291 Same as 2289
Start 22:28

Pull out HiRA, MB trigger,
Live time improves to ~70%

Went to Vault and put additional switch on HiRA & uBall requiring 2-fold, to make sure that there is no uBall-HiRA coincidences in the data stream

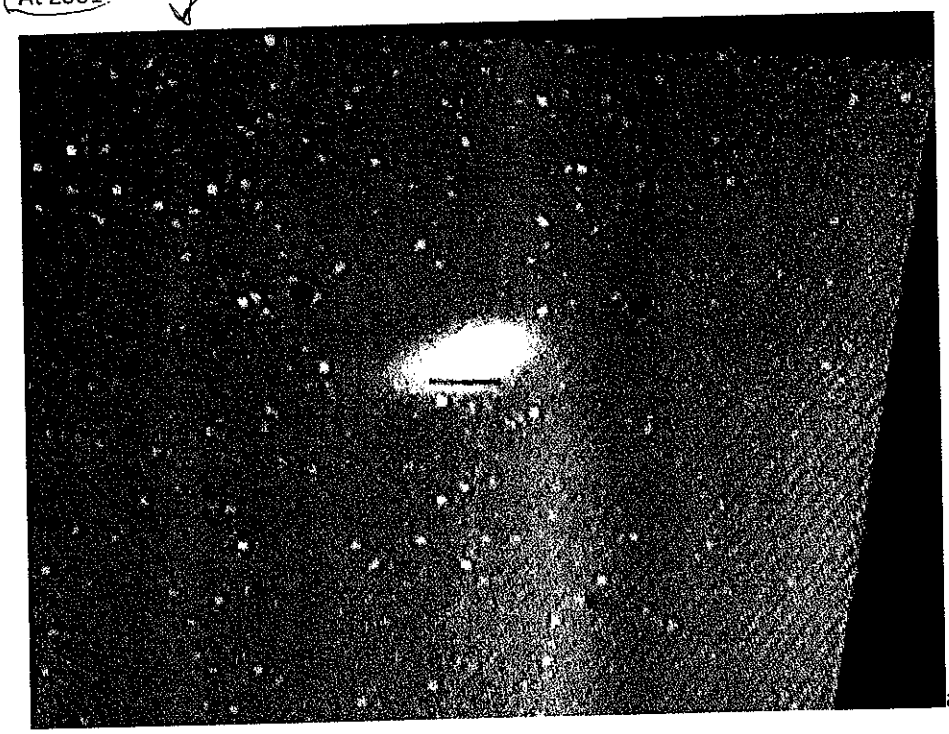
Checked the N-wall coincidence circuit — is working

Checked the uBall downscale ⇒ it is 300

The NW-uBall rate is like

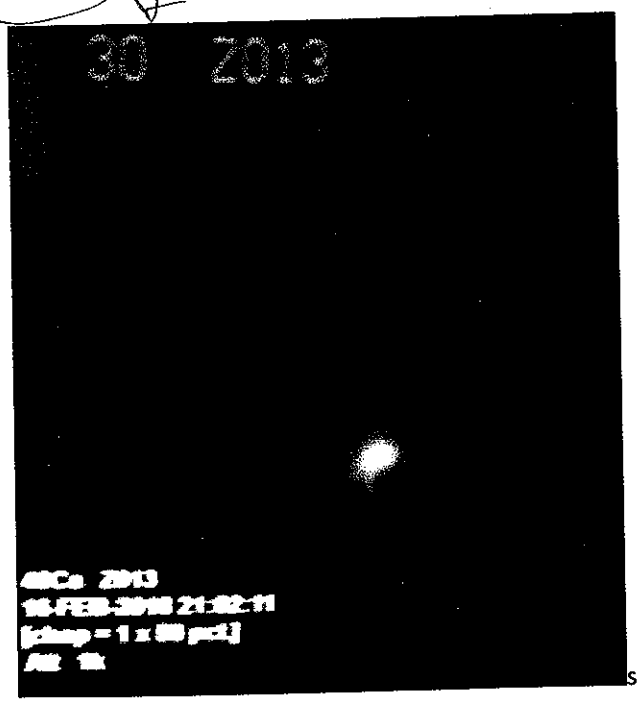
when 18Hz uBall DNS The trigger is 1.6KHz

At Zoo1



a

At z013



s

~~At Z015~~

Happy Chinese New Year.

Scribe Name	Betty		**others**				
Run #	2292	**Date**	2/16/18	**Start**	22:59	**Stop**	23:20
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence NW,MB		**FA**	On/Off	**uball mult.**	3
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	**G238F-C**	6.8×10^{-12}	**G. Master**	1642
HiRA trigger	NA	~~EF_OR~~		**EB_OR**		**CsI_OR**	
Any Downscalers?		live time 70%					
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

✔	line	addr	ch	power	Vset	Vmeas	Iset	Imeas	status
				OFF ON					
☑	0	0	0	ON	80.000V	79.997V	1.0000mA	0.0027mA	CV
☑	0	0	1	ON	280.000V	280.002V	1.0000mA	0.0005mA	CV
☑	0	0	2	ON	120.000V	119.998V	1.0000mA	0.0016mA	CV
☑	0	0	3	ON	190.000V	189.999V	1.0000mA	0.0007mA	CV
☑	0	0	4	ON	300.000V	299.999V	1.0000mA	0.0044mA	CV
☑	0	0	5	ON	150.000V	149.998V	1.0000mA	0.0039mA	CV
☐	0	0	6	OFF	0.000V	0.714V	1.0000mA	0.0001mA	
☑	0	0	7	ON	250.000V	250.000V	1.0000mA	0.0015mA	CV
☑	0	0	8	ON	350.000V	350.001V	1.0000mA	0.0037mA	CV
☑	0	0	9	ON	210.000V	210.000V	1.0000mA	0.0016mA	CV
☑	0	0	10	ON	240.000V	239.998V	1.0000mA	0.0013mA	CV
☑	0	0	11	ON	165.000V	165.000V	1.0000mA	0.0018mA	CV
☑	0	0	12	ON	250.000V	249.999V	1.0000mA	0.0017mA	CV
☐	0	0	13	OFF	0.000V	0.537V	1.0000mA	0.0001mA	

idence

RUN 2293
Same as previous beam being tuned
Start: 23:20 Stop: 23:54

RUN 2294 Same as previous
Start: 23:54 STOP ~~20~~ 00:29

Run 2295 SAME AS PREV.
START 00:29 STOP 00:57

(2/17/2018)
At 00:36 ISEG turned off
Make sure to turn on before investigating HiRA noise problem!!

Run 2296 Same as previous
Start: 00:57 Stop: 1:27

Run 2297 Same as previous
Start: 1:28 Stop = 1:58

Run 2298 Same as previous
START: 1:58 STOP: 2:28

Run 2299 SAME AS previous
START 2:28 STOP: 2:59

RUN 2300 SAME AS PREVIOUS

Junk START: 3:29 Stop

RUN 2301 Same as before

START 4:03 STOP 4:35

RUN 2302 Same as before

START 4:36 Stop = 5:04

Run 2303 Same as before

Start: 5:04 Stop - 5:39

Run 2304

Same as before

Start = 5:39 Stop: 6:27

Run 2305

Same as before

Start = 6:28 Stop = 6:57

Run 2306

Same as before

Start = 6:57 Stop = 7:25

Run 2307

Start = 7:25 Stop = 7:58

Run 2308

Start: 7:59 Stop: 8:31

Run 2309

Start: 8:31 Stop: 9:00

Run 2310

Start: 9:00 Stop: 9:18

Run 2311

Start: 10:03 Stop: 10:10

We had to open the chamber to address the Silicon noise issues. The DSS HV cable had fallen down and was making contact between its SHV barrel and the S* signal cables. We wrapped this in plastic to prevent further issue.

Scribe Name	Kyle B		**others**				
Run #	2312	**Date**	2/17/18	**Start**	13:06	**Stop**	
Type	Data	(calib)	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	(CH2(10u))
Trigger	(singles)	coincidence		**FA**	(On/Off)	**uball mult.**	3
NW HV file	(Co60)	15 MeV		25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar	(A+B+C+D)	none		**G238F-C**	48ep4	**G. Master**	1.8 KHz
HiRA trigger	**EF_OR**			**EB_OR**		**CsI_OR**	✗
Any Downscalers?	HRA DS = 1, NB.U DS = 300						
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						(yes)/no	
print scalers; save online spectra; check summary spectra (onc						Yes/(no)	
check summary spectra (once a hour)						Yes/(no)	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Run 2313: Put in blank target
- μBall OR at ~25 Hz, other scalers look good

Run 2314: No live scalers (^{112}Sn target)

Scribe Name Juan			**others** Kyle, Bill, Om, Betty, Fanurs				
Run # 2315		**Date** 2/17/18		**Start** 14:08		**Stop** 14:17	
Type	~~Data~~	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		**FA**	On/Off	**uball mult.**	3
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		~~A+B+C+D~~	none	**G238F-C**	42 epA	**G. Master**	350
HiRA trigger		**EF_OR**	1.7 k	**EB_OR**	800	**CsI_OR**	800
Any Downscalers? μBall 300							
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (one						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Run 2316: Beam increased by factor of ~10
up to 300 epA

increase the beam G238F-C 470 epA

Scribe Name	Fanurs		**others**	Betty, Kyle, Bill			
Run #	2317	**Date**	2/17/2018	**Start**	14:37	**Stop**	15:07
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	(112Sn(6.1))	CH2(10u)
Trigger	singles	(coincidence)		**FA**	On/Off	**uball mult.**	3
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**	460 $\times 10^{-12}$	**G. Master**	2450
HiRA trigger	7500	**EF_OR**	7500	**EB_OR**	5300	**CsI_OR**	6400
Any Downscalers?	μBall 300		Dead time 57%				
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Run 2317: As above.

Run 2318: Start 15:08 Stop: 15:43
readout crashed.

Run 2319: readout rebooted
Start 15:51 Stop: 16:20.

Kuan took over Run 2320 start: 16:20 stop: 17:02

Run 2321: start: 17:03 Stop 17:37

Run 2322: Start: 17:37 Stop 18:07

Run 2323: start: 18:07 stop: 18:37

Run 2324: start: 18:37 stop: 19:07

Run 2325 start: 19:08 stop: 19:43

RUN 2326 Start 19:43 Stop 20:16

RUN 2327 Start 20:16 Stop 20:49

RUN 2328 Start 20:50 Stop 21:18

Run 2329 start: 21:18 stop: 21:52

Run 2330 start: 21:52 stop: 22:23

Run 2331 start: 22:23 stop: 22:58

SUNK! { 23:14 Target is changed to blank target

Run 2332 start: 23:13 stop: 22:25

Scribe Name	Kuan Zhu		**others**	Om, Betty			
Run #	2332	**Date**	02/17/2018	**Start**	23:13	**Stop**	23:25
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	(blank)	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence)	HiRA+uB	**FA**	(On)/Off	**uball mult.**	3
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**	520 pA	**G. Master**	1
HiRA trigger	526	**EF_OR**	800	**EB_OR**	200	**CsI_OR**	576
Any Downscalers?	uBall ~300		1 CsI deadtime		0.98 (life time		
Check HiRA Voltage/current (once every 4 hrs)					(yes)/no		
Check coolant level (whenever the vault is open)					yes/(no)		
print scalers; save online spectra; check summary spectra (onc					(Yes)/no		
check summary spectra (once a hour)					Yes/(no)		
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Blank target ; Shawbars' position ~~was~~ slide a little bit, see attached picture. (shadow bar D ~~was~~

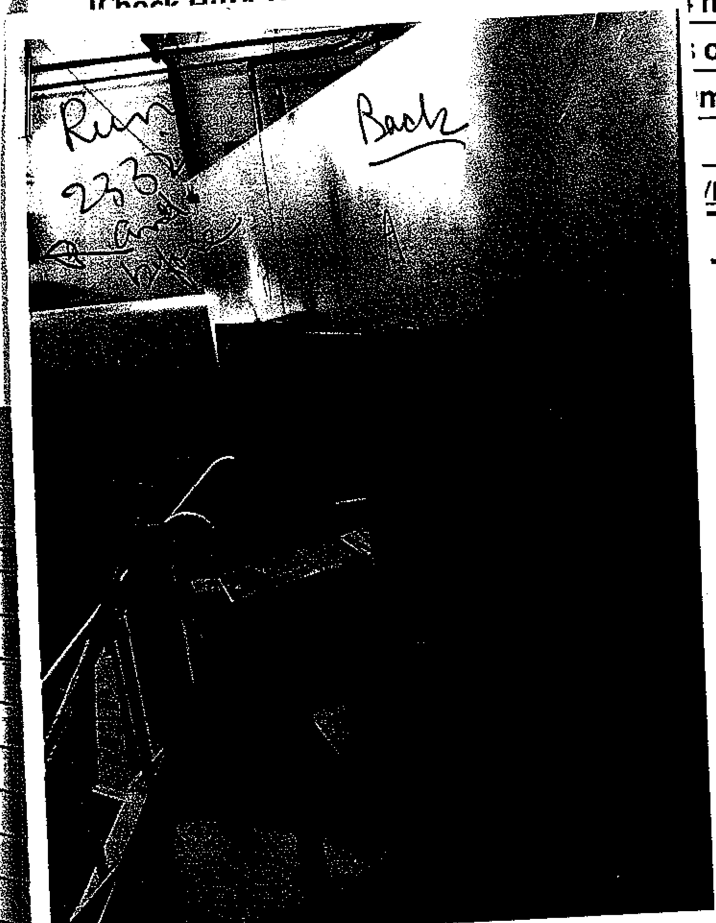
Seems like data file is corrupted, has no data, has scaler

~~02/18/2018~~ 02/17/2018
23:45
Target changed to Ni58

Shadow Bars' position fixed. (See Betty's picture in her phone)

Run 2333 start: 23:~~45~~ 49 stop: 00:20

Scribe Name	Kuan Zhu		**others** Om, Betty				
Run # 2333		**Date** 02/17/2018		**Start** 23:49		**Stop**	
Type	**Data**	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		**Merged (15190)**		other
Beam	**40Ca**	**Energy (MeV/u)**		140	**56**	39	
Target	viewer	blank	**58Ni(4.9)**	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	**coincidence** NW+uB HiRA+uB		**FA**	**On**/Off	**uball mult.**	3
NW HV file		**Co60**	15 MeV	25 MeV	**Thres. File**	**1 MeV**	2 MeV
Shadow Bar		**A+B+C+D**	none	**G238F-C**	532 epA	**G. Master**	2606
HiRA trigger	5928	**EF_OR**	8448	**EB_OR**	6331	**CsI_OR**	5847
Any Downscalers? uBall = 300				CsI deadtime 53%			
Check HiRA V...				**...hrs)**		**yes**/no	
				...open)		yes/**no**	
				...mmary spectra (on...		**Yes**/no	
						Yes/no	
				/hira/runlog/			



Run 2334

START 00:20 @@ STOP 00:50

Run 2335

START 00:50 STOP 1:20

Run 2336

START 1:21 STOP 1:51

Run 2337

START 1:51 STOP 2:21

Run 2338

START 2:21 STOP 02:52

RUN 2339

Start 2:52 Stop 3:23

CsI or OFORS live time ~54%

RUN 2340

Start 3:23 Stop 3:54

RUN 2341

Start 3:55 Stop 4:31

RUN 2342

Start 4:34 Stop 5:05

RUN 2343

Start 5:05 Stop 05:37

RUN 2344

Start 05:37 Stop 06:08

ScalerDisplay

Title: Ca40 56MeV/u, NIS8, coinc trig, uBall DS 300, NW thresholds 1MeV Elapsed Run Time: 0 00:01:52 | Source ID | Update Interval
Run: 2340 | 0 | 2.0
State: Active | 1 | 2.0

scalersNW | scalersHIRA | scalersFA | Deadtime

scalersFA

Numerator	Denominator	Rate(s)	Total(s)	Ratio (rates totals)
		3212.50	348381	
FA01		2063.00	220990	
FA02		5706.00	614361	
FA03		4035.50	435473	
FA04		3263.50	350947	
FA05		1545.00	167258	
FA06		2887.00	311157	
FA07		3739.00	398363	
FA08		1378.00	142908	
FA09		7030.00	758257	
FA10		2930.00	309916	
FA11		2079.50	224491	
FA12		5133.50	553880	
FA13		3069.00	335417	
FA14		1698.50	186680	
FA15		3565.50	384513	
FA16				

Enable Alarms

ScalerDisplay

Title: Ca40 56MeV/u, NIS8, coinc trig, uBall DS 300, NW thresholds 1MeV Elapsed Run Time: 0 00:01:24 | Source ID | Update Interval
Run: 2340 | 0 | 2.0
State: Active | 1 | 2.0

scalersNW | scalersHIRA | scalersFA | Deadtime

scalersHIRA

Numerator	Denominator	Rate(s)	Total(s)	Ratio (rates totals)
MB1_Back_OR		4962.00	421853	
MB2_Back_OR		2646.50	225666	
MB1_Front_OR		7126.00	598519	
MB2_Front_OR		5283.50	432340	
Si_Back_OR		6161.50	525512	
Si_Front_OR		8709.00	732854	
CsI_1_OR		3137.00	274420	
CsI_2_OR		1901.50	166286	
CsI_3_OR		1121.00	96731	
CsI_OR_of_ORs		5701.00	494654	
Raw_HiRA		5699.00	494514	
Global_Master		2518.00	200354	
microBall_OR		26673.50	2315166	
Busy		2518.50	200419	
AT_OR		0.00	0	
NW_Trigger_Raw		76564.50	6706384	

Enable Alarms

ScalerDisplay

Title: Ca40 56MeV/u, NIS8, coinc trig, uBall DS 300, NW thresholds 1MeV Elapsed Run Time: 0 00:00:08 | Source ID | Update Interval
Run: 2340 | 0 | 2.0
State: Active | 1 | 2.0

scalersNW | scalersHIRA | scalersFA | Deadtime

scalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio (rates totals)
OR_T_VW		7894.00	31941	
OR_B_VW		2267.00	9167	
OR_T_OR_B_VW		3453.00	14024	
GATE_VW		19899.50	79849	
FCLR_VW		18981.00	76237	
NW_Raw_Trig		36252.50	1002360	
NW_Live_Trig		19899.50	79849	
NW_Fast_Clear		18981.00	76237	
NW_Common_Gate		0.00	0	
FART_OR		10339.00	41367	
MASTER_TRG		2573.00	10261	
NW_Live_Trig	NW_Raw_Trig	19899.50 362	79849 10023	0.55 0.08

Enable Alarms

ScalerDisplay

Title: Ca40 56MeV/u, NIS8, coinc trig, uBall DS 300, NW thresholds 1MeV Elapsed Run Time: 0 00:02:20 | Source ID | Update Interval
Run: 2340 | 0 | 2.0
State: Active | 1 | 2.0

scalersNW | scalersHIRA | scalersFA | Deadtime

Deadtime

Numerator	Denominator	Rate(s)	Total(s)	Ratio (rates totals)
MASTER_TRG		2501.00	340435	
Live_Si_Back_OR	Si_Back_OR	2906.50 5939	404487 871105	0.49 0.46
Live_Si_Front_OR	Si_Front_OR	5431.50 8298	780371 1221852	0.65 0.64
Live_CsI_1_OR	CsI_1_OR	1737.00 3043	238555 449826	0.57 0.53
Live_CsI_2_OR	CsI_2_OR	1660.00 1857	222411 272458	0.89 0.82
Live_CsI_3_OR	CsI_3_OR	649.50 1106.5	86237 158822	0.59 0.54
Live_microBall_OR	microBall_OR	12763.50 262	1741605 3804085	0.49 0.46
Live_CsI_OR_of_ORs	CsI_OR_of_ORs	3031.00 5519	411780 810750	0.55 0.51

Enable Alarms

RUN 2345
Start: 06:08
Stop: 6:44

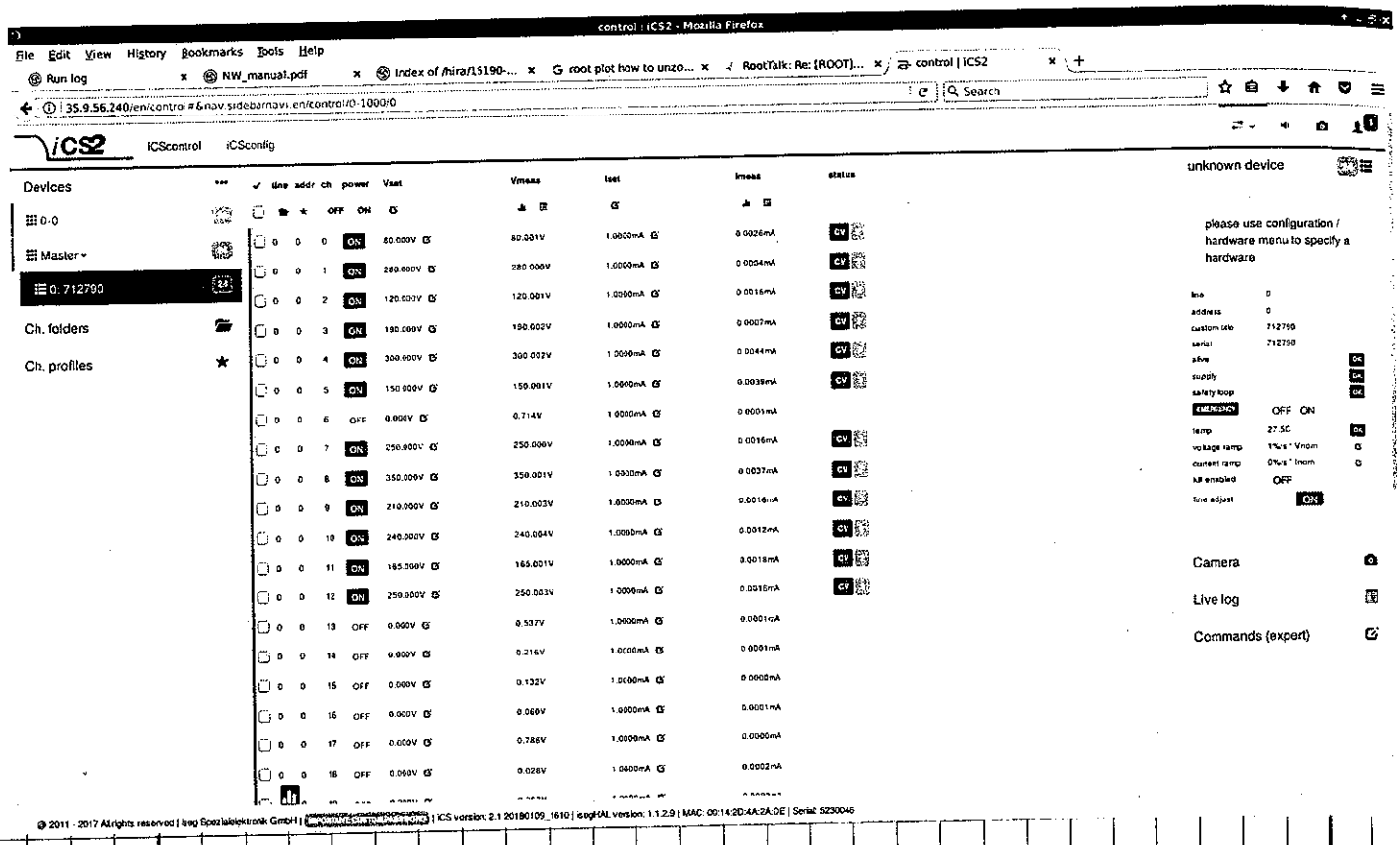
RUN 2346
Start 6:44
Stop: 07:15

RUN 2347
Start 07:15
Stop 07:48

RUN 2348
Start 07:48
Stop: 8:18

Run 2349
Start: 8:19
Stop: 8:48

Run 2350
Start: 8:51
Stop: 9:21



Run 2351

Start: 9:22 Stop: 9:51

Run 2352

Start: 9:52 Stop: 10:23

Run 2353

Start: 10:23 Stop: 10:53

Run 2354

Start: 10:55 Stop: 11:40

ScalerDisplay

Title: Ca40 56MeV/u, Ni58, coinc trig, uBall DS 300, NW thresholds 1MeV Elapsed Run Time: 0 00:24:26 | Source ID | Update Interval
Run: 2354 | 0 | 2.0
State: Active | 1 | 2.0

scalersNW | scalersHIRA | scalersFA | Deadtime

ScalersNW

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
OR_T_VW		8149.00	11770095	
OR_B_VW		2271.00	3340700	
OR_T_OR_B_VW		3569.00	5164633	
GATE_VW		19809.00	28799775	
FCLR_VW		18964.00	27495995	
NW_Raw_Trig		36151.50	53714331	
NW_Live_Trig		19809.00	28799775	
NW_Fast_Clear		18964.00	27496000	
NW_Common_Gate		0.00	0	
FART_OR		10568.00	15509449	
MASTER_TRG		2542.50	3766271	
NW_Live_Trig	NW_Raw_Trig	19809.00 361	28799775 53714331	0.55 0.54

scalersNW | scalersHIRA | scalersFA | Deadtime

ScalersHIRA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
MB1_Back_OR		4985.50	7130061	
MB2_Back_OR		2630.00	3869853	
MB1_Front_OR		7069.50	10107224	
MB2_Front_OR		5307.50	7618120	
Si_Back_OR		6145.50	8856236	
Si_Front_OR		8635.50	12372402	
CsI_1_OR		3118.00	4551765	
CsI_2_OR		1870.50	2720979	
CsI_3_OR		1057.50	1589006	
CsI_OR_of_ORs		5557.00	8145256	
Raw_HiRA		5554.50	8142690	
Global_Master		2534.00	3585358	
microBall_OR		26411.00	38463807	
Busy		2535.00	3586450	
AT_OR		0.00	0	
NW_Trigger_Raw		76264.50	107088179	
Live_Si_Back_OR		2986.00	4271215	
Live_Si_Front_OR		5748.00	8160756	
Live_CsI_1_OR		1779.50	2515406	
Live_CsI_2_OR		1639.00	2320451	
Live_CsI_3_OR		610.50	899654	
Live_microBall_OR		12787.00	18299937	
Live_microBall_Mult_Trigger		0.00	0	
Live_CsI_OR_of_ORs		3046.00	4313280	
microBallTrigger		27890.00	38653000	
microBallTrigger_DS		16614.50	23827255	

ScalerDisplay

Title: Ca40 56MeV/u, Ni58, coinc trig, uBall DS 300, NW thresholds 1MeV Elapsed Run Time: 0 00:22:42 | Source ID | Update Interval
Run: 2354 | 0 | 2.0
State: Active | 1 | 2.0

scalersNW | scalersHIRA | scalersFA | Deadtime

ScalersFA

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
FA01		3421.00	4620194	
FA02		2207.50	2982492	
FA03		5935.00	8096344	
FA04		4256.00	5763712	
FA05		3364.50	4582637	
FA06		1637.00	2207408	
FA07		3003.00	4080756	
FA08		3791.50	5167086	
FA09		1308.00	1804142	
FA10		7352.00	9932334	
FA11		2946.00	4036300	
FA12		2086.50	2856988	
FA13		5274.00	7211232	
FA14		3134.00	4327099	
FA15		1770.50	2431827	
FA16				

ScalerDisplay

Title: Ca40 56MeV/u, Ni58, coinc trig, uBall DS 300, NW thresholds 1MeV Elapsed Run Time: 0 00:19:30 | Source ID | Update Interval
Run: 2354 | 0 | 2.0
State: Active | 1 | 2.0

scalersNW | scalersHIRA | scalersFA | Deadtime

Deadtime

Numerator	Denominator	Rate(s)	Total(s)	Ratio [rates totals]
MASTER_TRG		2586.00	3024706	
Live_Si_Back_OR	Si_Back_OR	3048.00 6233.00	3596624 7473269	0.49 0.48
Live_Si_Front_OR	Si_Front_OR	5948.50 8798.00	6856427 10430765	0.68 0.66
Live_CsI_1_OR	CsI_1_OR	1810.50 3218.00	2119613 3846820	0.56 0.55
Live_CsI_2_OR	CsI_2_OR	1674.00 1938.00	1954584 2298388	0.86 0.85
Live_CsI_3_OR	CsI_3_OR	661.00 1158.50	758250 1342950	0.57 0.56
Live_microBall_OR	microBall_OR	13103.50 27126.00	15436622 32515809	0.48 0.47
Live_CsI_OR_of_ORs	CsI_OR_of_ORs	3115.00 5794.00	3633688 6882283	0.54 0.53

Scribe Name Sean				others			
Run # 2355		Date		Start		Stop	
Type	Data (circled)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190) (circled)		other
Beam: 40Ca		Energy (MeV/u)		140	56 (circled)	39	
Target	viewer	blank (circled)	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence (circled) NWA HiRA + MB		FA	On (circled)/Off	uball mult.	3
NW HV file		Co60 (circled)	15 MeV	25 MeV	Thres. File	1 MeV (circled)	2 MeV
Shadow Bar		A+B+C+D (circled)	none	G238F-C		G. Master	~0
HiRA trigger		EF_OR	900	EB_OR	200	CsI_OR	500
Any Downscalers? MB 300				CSI deadtime 98%			
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		https://groups.nscl.msu.edu/hira/runlog/					

Scribe Name Sean			others				
Run # > 356		Date		Start		Stop	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		Energy (MeV/u)		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		FA	On/Off	uball mult.	1
NW HV file		Co60	15 MeV	25 MeV	Thres. File	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	G238F-C		G. Master	7
HiRA trigger		EF_OR	400	EB_OR	150	CsI_OR	470
Any Downscalers?		MB 300		1 CsI deadtime 98%			
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	Sean
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Scribe Name Sean			others				
Run # 2357		Date		Start 12:35		Stop	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		Energy (MeV/u)		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence Hira NW+MB		FA	On/Off	uball mult.	1
NW HV file		Co60	15 MeV	25 MeV	Thres. File	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	G238F-C		G. Master	2900
HiRA trigger		EF_OR	8000	EB_OR	5500	CsI_OR	5400
Any Downscalers?				1 CsI deadtime			
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Scribe Name Sean			**others**				
Run # 2358		**Date**		**Start** 12:56		**Stop** 13:26	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	(112Sn(6.1))	CH2(10u)
Trigger	singles	(coincidence)		**FA**	On/Off	**uball mult.**	3
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**	500×10^{-12}	**G. Master**	2600
HiRA trigger		**EF_OR**	7500	**EB_OR**	8500	**CsI_OR**	5600
Any Downscalers?					1 CsI deadtime 30%		
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Run 2358 Start: 12:56 Stop: 13:26

Run 2359 Start: 13:26 Stop: 13:59

1. looked at downstream scintillator. There are positive reflection consistent with the termination at the rack being too high in impedance but that interpretation depends on the impedance at the PM tube.
2. Looked at the multiplicity circuit. It looks like the trigger is at $M_{NB} \geq 4$. But the signal is not that great and there is a small contribution from $M_{NB} = 3$ and below. The scaling appears consistent with the observed discriminator threshold. Looks ok.
3. We should try to fix the termination on the downstream scintillator

Run 2360 Start: 14:00 Stop: 14:28

Run 2361 Start: 14:29 Stop:

Run 2362 Start: 15:09 Stop: 15:27

Run 2363 start: 15:38 stop: 16:06

Kuan took over

Run 2364 start: 16:07 stop: 16:40

Run 2365 start: 16:40 stop: 17:10

Run 2366 start: 17:10 stop: 17:40

Run 2367 start: 17:40 stop: 18:10

Run 2368 start: 18:10 stop: 18:41

* can't find run2362.report file in /user/e1042/scalers

Run 2369 start: 18:41 stop: 19:13

Run 2370 start: 19:13 stop: 19:43

Run 2371 start: 19:43 stop: 20:18

Run 2372 start: 20:18 stop: 21:04

Run 2373 start: 21:04 stop: 21:34

Run 2374 start: 21:34 stop: 22:05

Run 2375 start: 22:05 stop: 22:35

Run 2376 start: 22:35 stop: 23:05

Target changed from Sn112 to blank target

Run 2377 start: 23:17 stop: 23:20

Scribe Name	Kuan Zhu	**others**	Betty, Tommy				
Run #	2377	**Date**	02/18/2018	**Start**	23:17	**Stop**	23:20
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	(HiRA (14030))	NW/VW (16042)		(Merged (15190))			other
Beam: (40Ca)		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	(blank)	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence) NW+uB HiRA+uB		**FA**	(On)/Off	**uball mult.**	3
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**	520 epA	**G. Master**	0.5
HiRA trigger	541	**EF_OR**	1361	**EB_OR**	478	**CsI_OR**	529
Any Downscalers?	uBall = 300			1CSI deadtime		0.97	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						(yes)/no	
print scalers; save online spectra; check summary spectra (on						(Yes)/no	
check summary spectra (once a hour)						(Yes)/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Target changed from blank target to Ni58 at 23:24

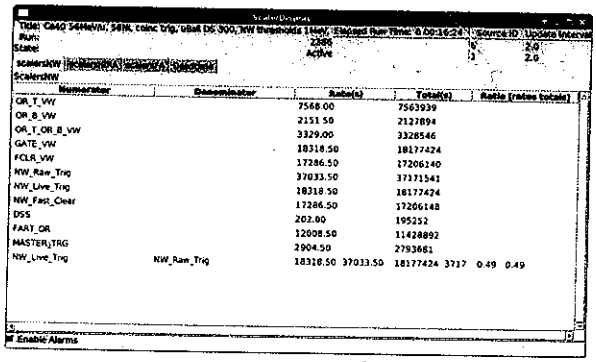
Scribe Name	Kuan Zhu.	**others**	Betty, Tommy				
Run #	2378	**Date**	02/18/2018	**Start**	23:27	**Stop**	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		(Merged (15190))		other
Beam: (40Ca)		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	(blank)	(58Ni(4.9))	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence) NW+uB HiRA+uB		**FA**	(On)/Off	**uball mult.**	3
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**	529 epA	**G. Master**	2572
HiRA trigger	5700	**EF_OR**	8830	**EB_OR**	6286	**CsI_OR**	
Any Downscalers?	uBall = 300			1CsI deadtime		0.54	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						yes/(no)	
print scalers; save online spectra; check summary spectra (on						(Yes)/no	
check summary spectra (once a hour)						(Yes)/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

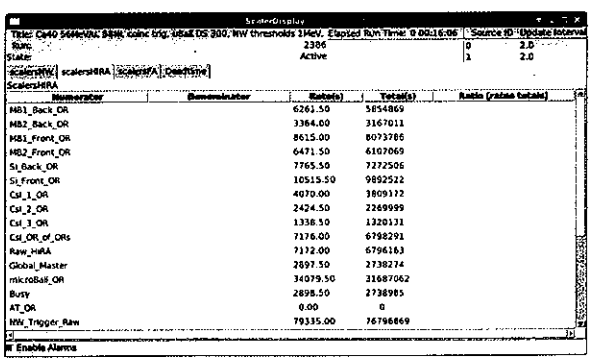
Daniele took over

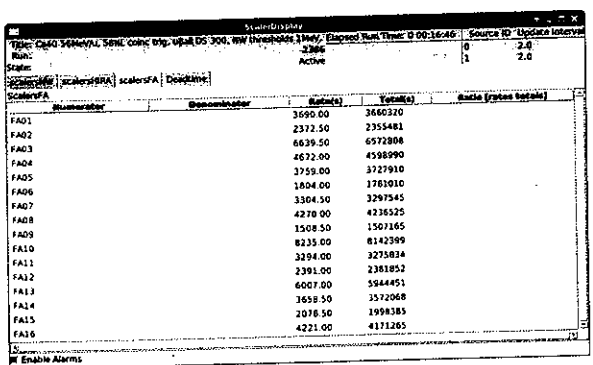
Run 2378 start: 23:27 stop: 00:01

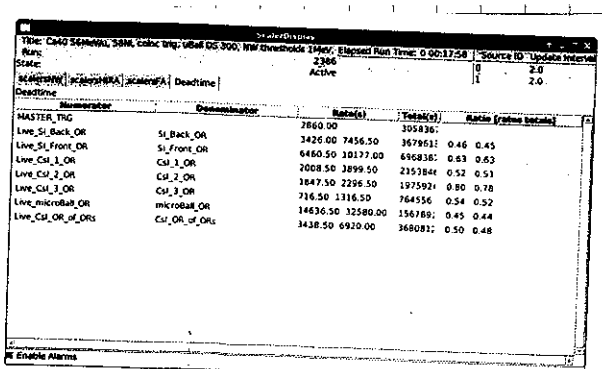
Asked for 15% ~~more~~ more beam

RUN 2379	Start:	00:01	Stop	00:34
RUN 2380	Start	00:34	Stop	01:07
RUN 2381	Start	01:08	Stop	01:38
RUN 2382	Start	01:39	Stop	02:09
RUN 2383	Start	02:09	Stop	02:42
RUN 2384	Start	02:42	Stop	03:18
RUN 2385	Start	03:18	Stop	03:55
RUN 2386	Start	03:55	Stop	04:26
RUN 2387	Start	04:26	Stop	04:56
RUN 2388	Start	04:57	Stop	05:30









RUN 2389	Start 05:31	Stop 06:02
RUN 2390	Start 06:03	Stop 06:34
RUN 2391	Start 06:34	Stop 07:04
RUN 2392	Start 07:04	Stop 07:37
RUN 2393	Start 07:37	Stop 8:06
Run 2394	Start 8:06	Stop : 8:27

Δt	C_t (?)	
1×10^6	70-9 Hz	2 Hz
$0.1\ M = 1 \times 10^5$	1.2-1.3 kHz	2-5 Hz
$10K$ 1×10^4	24 kHz	~ 10 Hz
$3K$ 3×10^3	300 kHz	50 Hz

Examined discriminator on Beam (downstream)

Scintillator Dead time in discriminator $= 340 \pm 15$ ns

$$R_{cal} = \frac{R_c}{1 - R_c \Delta t}$$

R_{cal} = actual rate

R_c = Rate in scaler

$\Delta t = 340 \pm 15$ ns

Cross-section measurements				40Ca	E/A=	56 MeV				2/19/2018
			Scintillator	uBall mult	Scalers					Cyc Beam
Run #	Att	Target	(in/out)	1 or 3	DDS	Master.trig	uBall OR	CsI OR	Live time	Intensity
2395	3k	58Ni	in	3						
2396	10k	58Ni	in	3						
2397	.1M	58Ni	in	3						
2398	Nobeam	58Ni	in	3		263	3787	48692		
2399	Junk	Junk								
[redacted]										
2400	Nobeam	Blank	in	1	5	2392	4925	53580	[redacted]	
2401	.1M	Blank	in	1	255849	2439	4970	[redacted]	-98/.93	
2402	10k	"	"	"	2042710	2468	5012	49976	-99/.90	
2403	3k	"	"	"	57.3M	7233	18211	62079		
2404	Nobeam	Blank	in	3	7	256	2956	48736		
2405	.1M	Blank	in	3	249881	257	2951	49858		
2406	10k	"	"	"	3844934	259	2707	44538		
2407	3k	"	"	"	55.45M	314	3466	60892		
2408	Nobeam	Blank	out	3	3	200	2146	37282		
2409	.1M	Blank	out	3	10	286	2857	54279		
2410	10k	Blank	out	3	8	283	2746	53408		
2411	3k	Blank	out	3	8	256	2788	48775		
2412	NoBeam	Blank	out	1	0	2354	3270	48728		
2413	.1M	"	"	"	7	2294	3162	48891		
2414	10k	"	"	"	11	2267	3103	48441		
2415	3k	"	"	"	6	2258	3156	49548		

Run control locked up → 2396

Run control locked up → 2397

Run control locked up → 2408

Cross-section measurements				40Ca	E/A=	56 MeV				2/19/2018
			Scintillator	uBall mult	Scalers (totals)					Cyc Beam
Run #	Att	Target	(in/out)	1 or 3	DDS	Master.trig	uBall OR	CsI OR	Live time	Intensity
2416	No beam	^{112}Sn	out	1	8	2088	2638	47764		
2417	.1M	"	"	"						
2418	10k	"	"	"	8	2370	3106	51474		
2419	3k	"	"	"	26	1156	12340	57049		
2420	No beam	^{112}Sn	out	3	Junk					
2421	No beam	^{112}Sn	out	3	8	216	2036	38829		
2422	.1M	"	"	"	11	261	2559	47486		
2423	10k	"	"	"	11	489	3047	47156		
2424	3k	"	"	"	80	3666	11870	52023		
2425	No beam	^{112}Sn	IN	3	9	280	2510	56176		
2426	.1M	"	"	"	238277	269	2524	49336		
2427	10k	"	"	"	346620	484	3023	47471		
2428	3k	"	"	"	47.46M					
2429	No beam	^{112}Sn	IN	1	6	2061	2543	47067		
2430	.1M	"	IN	1	254734	2053	2526	51840		
2431	10k	"	IN	1	3615686	2559	3274	68826		
2432	3k	"	IN	1	47495635	8512	13089	60614		
2433	No beam	^{58}Ni	IN	1	3	2168	2671	47488		
2434	.1M	"	IN	1						
2435	10k	"	IN	1						
2436	.1M	"	IN	1	221951	2364	2765	85272		
2437	10k	"	IN	1	1222391	678	3239	49057		

Run control hung up →

Junk →

Run control hung up →

Junk

Junk

Scalar file not written

Cross-section measurements			40Ca	E/A=	56 MeV				2/19/2018
			Scintillator	uBall mult	Scalers (total)				Cyc Beam
Run #	Att	Target	(in/out)	1 or 3	DDS DSC	Master.trig	uBall OR	CsI OR	Live time	Intensity
2438	3K	58Ni	IN	1	42.8M	8693	13157	60514		
2439	Nobeam	58Ni	IN	3	5	263	2713	50606		
2440	.1M	"	"	"	197020	263	2655	48419		
2441	10K	"	"	"	3.18M	495	3246	49464		
2442	3K	"	"	"	47.4M	4295	14376	61873		
2443	Nobeam	58Ni	Out	3	6	401	2546	76502		
Junk 2444	.1M	"	"	"	Junk					
2445	.1M	"	"	"	7	433	2630	92532		
DAQ hung 2446	10K	"	"	"						
2447	3K	"	"	"	100	4030	12665	54114		
Redo 2448	10K	"	"	"	12	442	3374	56047		
2449	Nobeam	58Ni	OUT	1	11	2087	2588	48044		
2450	.1M	"	"	"	6	2889	2560	51251		
DAQ hung up → 2451	10K	"	"	"						
2452	3K	"	"	"	108	9558	14776	59412		
2453	Nobeam	Blank	Out	3	7	500	2956	93945		
2454	.1M	"	"	3	6	277	2996	53621		
2455	10K	"	"	3	10	252	2796	48509		
2456	3K	"	"	(8)?	8	170	1757	31611		
2457	—					Junk				
2458	Nobeam	Blank	Out	1	9	2341	5032	54528		

DAQ hung up

Redo because DAQ hung up

Scalers didn't save

Cross-section run sheets				40Ca	E/A=	56 MeV				2/19/2018
			Scintillator	uBall mult	Scalers					Cyc Beam
Run #	Att	Target	(in/out)	1 or 3	DSS	Master.trig	uBall OR	CsI OR	Live time	Intensity
~~2459~~	~~.1M~~	~~Blank~~	~~out~~	~~1~~		Junk				
DAQ hung up → 2460	.1M	Blank	out	1						← Don't use this
2461	10k	〃	〃	〃	10	2376	5129	49156		
2462	3k	〃	〃	〃	7	2380		48916		
Re-do the DAQ hang up → 2463	.1M	〃	〃	〃						← Use this for .1M setting
2464	No beam	Blank	IN	3	3	257	2778	49464		
DAQ hung up → 2465	.1M	〃	〃	〃						
Redo run 2466	.1M	〃	〃	〃	166922	246	2661	48318		
2467	10K	〃	〃	〃	2.18M	257	2691	49236		
2468	3k	〃	〃	〃	38.5M	297	3447	56158		
2469	No beam	Blank	IN	1	7	2491	3759	48526		
2470	.1M	〃	〃	〃	152308	2527	3675	47528		
2471	10K	〃	〃	〃	1.79M	2475	2741	48927		
DAQ hung up → 2472	3k	〃	〃	〃	13.5M					← Less counts in DSS
Re-do → 2473	3k	〃	〃	〃	30.8M	~~3875~~ 2683	4633	55230		← Use this for 3k
2474	No beam	124Sn	IN	1	7	2683	5053	48599		
2475	.1M	〃	〃	〃						
DAQ hung-up Re-do → 2476	10K	〃	〃	〃						
2477	10K	〃	〃	〃						
2478	3K	〃	〃	〃						
DAQ hangup. redo 2480	3k	〃	〃	3						
2481	10K	〃	〃	3						
DAQ hangup 2483	.1M	〃	〃	3						

Comment: Marked Run-2479, 2482, 2484 as "Junk" on website (Kuan)

Scribe Name Betty			**others** Kyle, Daniele				
Run # 2488		**Date** 2/19/18	**Start**			**Stop**	
Type	~~Data~~	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence		**FA**	~~On~~/Off	**uball mult.**	3
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	**G238F-C**	500 epA	**G. Master**	19.5
HiRA trigger		**EF_OR**	1345	**EB_OR**	325	**CsI_OR**	462
Any Downscalers?						CsI deadtime: 98%	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Save trigger as in the RAMP NW
@ Blank target Run after RAMP

2/20/2018 0:00 am Kuan took over
Zibi said shadow bars were removed since the morning of 2/20/2018
→ really removed at the end of beam normalization measurements)

Scribe Name Kelly		others Kyle Daniele			Stop 20:08	
Run # 2485	Date 2/19/18		Start 19:35			
Type (Data)	calib	debug	alpha	pulser	source	junk
DAQ HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca	Energy (MeV/u)		140	(56)	39	
Target viewer	blank	(58Ni(4.9))	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger singles	(coincidence)		FA	(On)/Off	uball mult. 3	
NW HV file	(Co60)	15 MeV	25 MeV	Thres. File	(1 MeV)	2 MeV
Shadow Bar	A+B+C+D	(none)	G238F-C	500 cpA	G. Master	2439
HiRA trigger	EF_OR	~~49k~~ 8.5k	EB_OR	5.9k	CsI_OR	5k

Any Downscalers? μBall 300. 1 CsI deadtime 0.55

Check HiRA Voltage/current (once every 4 hrs)	yes/no	
Check coolant level (whenever the vault is open)	yes/no	
print scalers; save online spectra; check summary spectra (onc	Yes/no	
check summary spectra (once a hour)	Yes/no	

Comments: https://groups.nscl.msu.edu/hira/runlog/

Run 2486 start: 20:08 Stop: 20:38

RUN 2487 start: 20:49 Stop: 21:34

RUN 2488 start: 21:35 Stop 22:15

2489 start: 22:16 Stop 22:56

Cyclotron has some issues with magnets, so beam stoped around 22:30 pm (ask zibi)

At 2:15 am, target was changed from Ni58 to blank so that when beam comes back we can check

At 4:00 am, the beam comes back.

Run 2490 Ca40 56MeV, Blank, Junk. just used to check if beam is hitting the frame.

Scribe Name Kuan Zhu			**others** Zibi				
Run # Not recorded		**Date** 2/20/18		**Start**		**Stop**	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence NW+uball HiRA+uball		**EA**	On/Off	**uball mult.**	3
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	**G238F-C**	898epA	**G. Master**	2
HiRA trigger ~~3813~~		**EF_OR**	~~6900~~	**EB_OR**	~~3800~~	**CsI_OR**	~~3744~~
Any Downscalers? uBall = 300					CsI deadtime	0.98	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	

Scribe Name Kuan Zhu			**others** Hong				
Run # 2491		**Date** 2/20/18		**Start** 4:26		**Stop**	
Type	Data	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	56	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	coincidence NW+uball HiRA+uball		**EA**	On/Off	**uball mult.**	
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		A+B+C+D	none	**G238F-C**	800epA	**G. Master**	3200
HiRA trigger ~~3813~~		**EF_OR**	6900	**EB_OR**	3800	**CsI_OR**	3744
Any Downscalers? uBall = 300					CsI deadtime	0.46	
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (on						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Beam intensity drops from 800 epA generally to 700 epA ~ 510 epA

Run 2491 start: 4:26 stop: 4:56
Run 2492 start: 4:57 stop: 5:26
Run 2493 start: 5:27 stop: 5:57
Run 2494 start: 5:57 stop: 6:27

ask to increase the beam intensity by 15%. → 660 epA & 0.48 life time

Run 2495 start: 6:28 stop: 6:58 Cbeam intensity: 430e

Operater suspects that if the beam is drifted

Target changed from Ni58 to blank to check if the beam is drifted

The Log paper is being ~~run~~ used up.

G1238F-C: 429 epA, G_Master = 0.5, Deadtime: 0.98
blank target, Ca40 56MeV/u.
HiRA trigger: 70875, EF_OR: 2039, EB_OR: 236,
CsI_OR: 468.

DAQ hung up

Target changed back from blacket to Ni58 @ 7:30am

Operater took the ~~beam~~ key of beam so that they can check the beam position

@ 7:52 am, beam back to us

Run 2496 Junk

Scribe Name	Kuan Zhu		**others**	Daniele.			
Run #	2497	**Date**	02/20/2018	**Start**	7:52	**Stop**	08:23
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		(NW/VW (16042))		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	(58Ni(4.9))	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence)	NW+CsI HiRA+CsI	**FA**	(On)/Off	**uball mult.**	3
NW HV file		(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		A+B+C+D	(none)	**G238F-C**	680 epA	**G. Master**	02977
HiRA trigger	7214	**EF_OR**	108100	**EB_OR**	7800	**CsI_OR**	6994
Any Downscalers?	uBall =300			1 CsI deadtime		0.48	
Check HiRA Voltage/current (once every 4 hrs)						(yes)/no	
Check coolant level (whenever the vault is open)						(yes)/no	
print scalers; save online spectra; check summary spectra (onc						(Yes)/no	
check summary spectra (once a hour)						(Yes)/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						

Run 2497 start: 7:52 stop: 08:23

Run 2498 start: 8:23 stop: 8:53

Run 2499 start: 8:54 stop: 9:24

Run 2500 start: 9:24 stop: 9:54

Run 2501 start: 9:54 stop: 10:24

RUN 2502 Start 10:24 Stop: 10:54

RUN 2503 Start: 10:54 Stop: 10:57

↳ Stopped early for turning HiRA OFF

Run 2504 → Junk

Run 2505 →

w/ HiRA and ~600 epA: deadtime ~ 50%

w/o HiRA and ~1000 epA: deadtime ~ 35%

Plan is to run like this (no HiRA) until 7 pm

Note: HiRA-μBall coincidence removed from trigger, but not from TDC. This will be fixed after this run.

Scribe Name Juan		**others** Daniele, Betty, Zibi, Kyle				
Run # 2506	**Date** 2/20/18		**Start** 11:38		**Stop** 12:12	
Type (Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)	NW/VW (16042)		(Merged (15190))		other
Beam: 40Ca	**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	(58Ni(4.9))	64Ni(5.3)	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence) NW μBall		**FA**	(On)/Off	**uball mult.** 3
NW HV file	(Co60)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar	A+B+C+D	none	**G238F-C**	1000pA	**G. Master**	2000
CsI Livetime 65%	**EF_OR**	0	**EB_OR**	0	**CsI_OR**	~11k
Any Downscalers? μBall 300						
Check HiRA Voltage/current (once every 4 hrs) (add to spreadsheet)					(yes)/no	
Check coolant level (whenever the vault is open)					yes/no	
print scalers; save online spectra; check summary spectra (onc					Yes/no	
check summary spectra (once a hour)					Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/					
All HiRA discriminators OFF						

RUN 2507: HiRA-μBall coincidence removed from the TDC.

Start 12:20 Stop 12:50

Run 2508: Start: 12:50 Stop: 13:21

Starting in Run 2508, we are tracking HiRA leakage currents in Excel spreadsheet on u3pc1

Run 2509: Start: 13:21 Stop: 13:53

h 13:53 the operators are doing some beam adjustments.

h 14:08 tuning done. We have the beam back

RUN 2510 : beam intensity ≥ 1 nA

Start 14:08 Stop 14:21

RUN 2511 : junk

→ Shadow bars in

→ HiRA · μBall coincidence again in trigger

→ beam intensity ~ 580 pA

Scribe Name Daniele			**others** Zibi				
Run # 2512		**Date** 02/20/18		**Start** 14:38		**Stop** 15:07	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	58Ni(4.9)	(64Ni(5.3))	124Sn(6.5)	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence) NW HiRA μBall μBall		**FA**	(On)/Off	**uball mult.**	
NW HV file		Co60	15 MeV	25 MeV	**Thres. File**	1 MeV	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**	580epA	**G. Master**	2847
CsI Livetime 49%		**EF_OR**	9330	**EB_OR**	6654	**CsI_OR**	~~9000~~ 7285
Any Downscalers? μBall DS=300							
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						yes/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:		https://groups.nscl.msu.edu/hira/runlog/					
Shadow bars in again, HiRA·μBall in trigger again, beam ~ 580 pA							

RUN 2512 Start 14:38 Stop 15:08

RUN 2513 Start 15:08 Stop 15:41

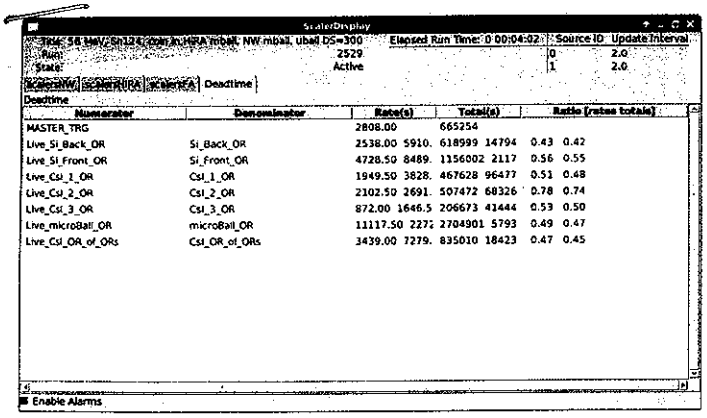
RUN 2514	Start 15:41	Stop 16:13	
RUN 2515	Start 16:13	Stop 16:43	
crash of the readout partially jewk → RUN 2516	Start 16:44	Stop 17:03	
RUN 2517	Start 17:16	Stop 17.46	
RUN 2518	Start 17:47	Stop 18:23	
RUN 2519	Start 18:25	Stop 18:56	
RUN 2520	Start 18:56	Stop 19:27	
Run 2521	Start 19:27	stop 20:27	
Run 2522	start 20:27	stop 21:31	
Run 2523	Start 21:31	Stop 22:20	

Shadow bar slid down in D.
Zibi ~~is~~ wants to check out the HV of the FAbo

Run 2524 – 2527 FA HV P

Run 2528 – Blank target
Nothing coming in so stop run.

Scribe Name Betty			**others** Zibai Tommy Jun & WHO				
Run # 2529		**Date** 2/20		**Start** 23:05		**Stop** 23:48	
Type	(Data)	calib	debug	alpha	pulser	source	junk
DAQ	HiRA (14030)		NW/VW (16042)		Merged (15190)		other
Beam: 40Ca		**Energy (MeV/u)**		140	(56)	39	
Target	viewer	blank	58Ni(4.9)	64Ni(5.3)	(124Sn(6.5))	112Sn(6.1)	CH2(10u)
Trigger	singles	(coincidence)		**FA**	(On)/Off	**uball mult.** 3	
NW HV file		(C060)	15 MeV	25 MeV	**Thres. File**	(1 MeV)	2 MeV
Shadow Bar		(A+B+C+D)	none	**G238F-C**	590 pA	**G. Master**	2800
CsI Livetime .47		**EF_OR**	4800	**EB_OR**	2600	**CsI_OR**	3000
Any Downscalers?		uBall 300		Est ~~Deadtime~~ Live time .47			
Check HiRA Voltage/current (once every 4 hrs)						yes/no	
Check coolant level (whenever the vault is open)						(yes)/no	
print scalers; save online spectra; check summary spectra (onc						Yes/no	
check summary spectra (once a hour)						Yes/no	
Comments:	https://groups.nscl.msu.edu/hira/runlog/						



Run 2529

Start 23:05 Stop 2348

Run 2530

Start 2348 stop : 23:50

- beeps go crazy, stop to investigate but found nothing

02/21/2018 (Kuan)

Run 2531 Start : 23:52 Stop : 00:23

Run 2532 start : 00:23 stop : 00:54

Run 2533 start : 00:54 stop : 01:29

Run 2534 start : ~~00~~ 01:29 stop : 01:59

Run 2535 start : 01:59 stop : 02:29

Run 2536 start : 02:30 stop : 03:00

Run 2537 start : 03:00 stop : 03:32

Run 2538 start : 03:32 stop : 04:06

Run 2539 start : 04:06 stop : 04:36

	Run 2540	start: 04:36	stop: 05:05
	Run 2541	start: 05:06	stop: 05:35
	Run 2542	start: 05:36	stop: 06:06
Beeper has →	Run 2543	start: 06:06	stop: 06:39
no sound	Run 2544	start: 06:40	stop: 07:20
But others	Run 2545	start: 07:20	stop: 07:51
are fine	Run 2546	start: 07:52	stop: 07:53 ← Key taken by operator fo
(for 20 min)			chec

We dropped the beam down to 150 epA on the FC at ~~max~~ min attenuation. This gives the following rates on the DSS, higher than previous norm

Att	Rate
1M	1.6 KHz
.1M	20 KHz
30K	79 KHz
10K	450 KHz

We have the CsI pulser going at 50 Hz @ 0.5 V. The DSS is @ 500 V and 0.9 mA.

2/21/19
~~2/19/2018~~

Cross-section run sheets				40Ca	E/A= 56 MeV					
			Scintillator	uBall mult	Scalers					Cyc Beam
Run #	Att	Target	(in/out)	1 or 3	DDS	Master.trig	uBall OR	CsI OR	Live time	Intensity
2547	10K	64N;	IN	3	71.1 M	13646	24900	143974		130 epA
2548	30K	"	"	"	13.7 M	9836	8637	138797		
2549	.1M	"	"	"	3.55 M	8043	5344	120571	0.94	
2550	.1M	"	"	1	3.31 M	10880	5039	122198	0.94	
2551	30K	"	"	"	12.2 M	12102	7023	127215	0.93	
2552	10K	"	"	"	65.9M	20417	20456	142227	0.92	
2553	10K	blank	IN	1	68.1 M	10715	4463	147009	0.94	
2554	10K	64N;	Out	1	176	21863	22462	153483	0.93	
2555	30K	"	"	"	28	12672	7343	145940		
2556	.1M	"	"	"	11	10704	4797	131745	0.93	
2557	.1M	"	"	3	12	7800	4554	136651		
2558	30K	"	"	"	45	8527	6613	136716	0.93	
2559	10K	"	"	"	150	13005	19716	144694		

CsI Pulses

2560 Ramp from 0.1 V to 5V in 31 steps
CsI 1

2561 CsI 2, 0.1 to 5V, 31 steps

2562 CsI 2, 0.1 to 1.5 V, 11 steps (wrong title)

2563 CsI 3, 0.1 to 1.5 V, 11 steps

2564 CsI 3, 0.1 to 5V, 31 steps

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A1900 "Print20Dec17_17h03.txt" Wednesday 17:03:35 2017-12-20  A1900
Moe_258   ***  2H unwedged 0.5% dp/p 1.2 Tm to G207 pr ***
Expt: 16042 "Commissioning of the LCPV Wall" [Tsang, Betty] Line: RPMS [6]
Beam: 16 O 3+  13.06 MeV/nuc (K500) 8+    150 MeV/nuc (K1200) Chpr off
<Att   1k>  ECR, Apertures: ARTEMIS 150.0; 15.0;  7.5 mm RHVBI: 24.1100 kV
K500 a,b:    614 A,    521 A K1200:    720 A,   -214 A RF:  23.83300 MHz
       A1900 Optics: L19S1G_V3b.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  3.66369 Tm
Seg 1:  1.20000 Tm  0.38798 T  3.09269 m    3.09291 m   -0.00716 % (1.19991 Tm)
Seg 2:  1.20000 Tm  0.00000 T  3.09626 m    0.00000 m  100.00000 % (1.19991 Tm)
Seg 3:  1.20000 Tm  0.38909 T  3.08425 m    3.08410 m    0.00465 % (1.20006 Tm)
Seg 4:  1.20000 Tm  0.38738 T  3.09802 m    3.09771 m    0.01022 % (1.20012 Tm)
Seg 5:  1.20000 Tm
Seg 6:  1.20000 Tm
Seg 7: -0.00000 Tm
A116DS              0.38670 T  3.10375 m    3.10318 m    0.01847 %
A132DS             -0.01315 T  91.30435 m   91.25475 m    0.05435 %
Slits: I181 XC,G,YC,G:   76.24,  84.40; -77.44,  84.58
Z001TL: out, Z013TL: out; Z014TL out
Z015TL: Be 3526, Z016TL out; Z015T[mm]   20.42 ( 20.422 rd) pot   0.04 V
Z030BC Beam Stop: -126.19 mm
Z037L,R:  -15.01,  15.00 mm or   -0.51,    0.51 width=   1.02 %; Z037DC: out
Z057MS: 1.0 pct, Z061MS: 0.5 pct
Z059DC: out, Z062SC: out, Z059TL: out
Z082 XC,G,YG:    0.16, 203.64, 202.05 mm Z082TL: out
Z103DC: out, Z106DC: out, Z107DC_U/_L: out/out
Z104DC-R  -0.003 mm; .IRPOS  0; .STR1 BC400 #052 165um p8
Z105TL: out, Slits: ; PPACs: ; Z107 outlim: Y
Z104 XC,G;YC,G:   -0.99,   5.02;    -1.50,   84.99 mm
G183 Y slits: center  -1.8879 mm, gap  96.2176 mm
G183PP: out; G184DC: out; G185DC: out

MagName  Ref[kG]  BSet[kG]    Ratio     (live)     Set[A]   Read[A] DEVI
Z001DV     0.000    -0.622 -16980.70 -16980.70  -270.0000 -267.510      Z001DV
Z002DH     0.000    -0.384 -10491.83 -10491.83    -0.9373   -0.853      Z002DH
Z003DV     0.000     0.962  26255.99  26255.99     2.3306    2.382      Z003DV
Z004QA     1.685     6.174  1.000000  1.000000     4.3143    4.310      Z004QA
Z005QB    -0.414    -1.517  1.000000  1.000000    -1.0584   -1.025      Z005QB
Z008DS     2.492     9.344  1.023528  1.023528    31.4227   31.497      Z008DS
Z011QA    -2.322    -8.508  1.000000  1.000000    -5.9498   -5.883      Z011QA
Z012QB     3.409    12.490  1.000000  1.000000     8.8087    8.765      Z012QB
 ------------------------ Segment 1 ------------------------------------------
Z017TA     3.539     4.490  1.057000  1.057000    11.7958   11.904      Z017TA
Z019TB    -3.322    -4.028  1.010000  1.010000   -10.6022  -10.618      Z019TB
Z021TC     2.407     3.013  1.043000  1.043000     6.2861    6.350      Z021TC
Z026DS     3.226     3.835  0.991905  0.990741    23.4118   23.121      Z026DS
Z031TA     2.926     3.513  1.000000  1.000000     7.2610    7.326      Z031TA
Z033TB    -3.613    -4.337  1.000000  1.000000   -12.6503  -12.633      Z033TB
Z035TC     3.183     3.822  1.000000  1.000000     7.7495    7.815      Z035TC
 ------------------------ Segment 2 ------------------------------------------
Z039TA     3.183     3.822  1.000000  1.000000     7.9372    7.937      Z039TA
Z041TB    -3.562    -4.275  1.000000  1.000000   -12.5008  -12.510      Z041TB
Z043TC     2.924     3.510  1.000000  1.000000     7.3053    7.326      Z043TC
Z048DS    -3.226    -3.898  1.006868  1.006868   -24.2060  -24.161      Z048DS
Z053TA     2.800     3.360  1.000000  1.000000     6.9028    6.899      Z053TA
Z055TB    -3.665    -4.400  1.000000  1.000000   -11.8622  -11.839      Z055TB
Z057TC     3.264     3.927  1.000000  1.000000    37.2435   37.053      Z057TC
 ------------------------ Segment 3 ------------------------------------------
Z062TA     3.264     3.927  1.000000  1.000000    37.3305   37.107      Z062TA
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A1900 "Print19Dec17_20h11.txt"   Tuesday 20:11:29 2017-12-19  A1900
Moe_258   ***       2H soup Be3526 2.1 Tm to G207 prod ***
Expt: 16042 "Commissioning of the LCPV Wall" [Tsang, Betty] Line: RPMS [6]
Beam: 16 O 3+  13.06 MeV/nuc (K500) 8+    150 MeV/nuc (K1200) Chpr off
<Att   1M>  ECR, Apertures: ARTEMIS 150.0; 15.0;  7.5 mm RHVBI: 24.1100 kV
K500 a,b:    614 A,    521 A K1200:    720 A,   -214 A RF:  23.83300 MHz
      A1900 Optics: L19S1G_V3b.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  3.66369 Tm
Seg 1:  2.10000 Tm  0.67970 T  3.08941 m    3.08959 m   -0.00571 % (2.09988 Tm)
Seg 2:  2.10000 Tm  0.67881 T  3.09382 m    3.09366 m    0.00498 % (2.10010 Tm)
Seg 3:  2.10000 Tm  0.68139 T  3.08153 m    3.08195 m   -0.01365 % (2.09971 Tm)
Seg 4:  2.10000 Tm  0.67850 T  3.09492 m    3.09507 m   -0.00486 % (2.09990 Tm)
Seg 5:  2.10000 Tm
Seg 6:  2.10000 Tm
Seg 7: -0.00000 Tm
A116DS              0.67660 T  3.10375 m    3.10375 m    0.00000 %
A132DS             -0.02300 T  91.30435 m   91.30435 m    0.00000 %
Slits: I181 XC,G,YC,G:   76.24,  84.40; -77.42,  84.53
Z001TL: out, Z013TL: out; Z014TL out
Z015TL: Be 3526, Z016TL out; Z015T[mm]   20.42 ( 20.422 rd) pot   0.04 V
Z030BC Beam Stop: -126.19 mm
Z037L,R:  -15.01,  15.00 mm or   -0.51,    0.51 width=   1.02 %; Z037DC: out
Z057MS: 1.0 pct, Z061MS: 0.5 pct
Z059DC: out, Z062SC: out, Z059TL: out
Z082 XC,G,YG:    0.16, 203.64, 202.05 mm Z082TL: out
Z103DC: out, Z106DC: out, Z107DC_U/_L: out/out
Z104DC-R  -0.003 mm; .IRPOS  0; .STR1 BC400 #052 165um p8
Z105TL: out, Slits: ; PPACs: ; Z107 outlim: Y
Z104 XC,G;YC,G:   -1.00,  89.99;    -1.50,   89.99 mm
G183 Y slits: center  -1.8879 mm, gap  96.2176 mm
G183PP: out; G184DC: out; G185DC: out

MagName  Ref[kG]  BSet[kG]    Ratio     (live)     Set[A]   Read[A] DEVI
Z001DV     0.000    -0.622 -16980.70 -16980.70  -270.0000 -267.548       Z001DV
Z002DH     0.000    -0.428 -11687.41 -11687.41    -1.0441   -0.975       Z002DH
Z003DV     0.000     0.927  25396.81  25310.89     2.2467    2.260 read Z003DV
Z004QA     1.685     6.174  1.000000  1.000000     4.3143    4.322       Z004QA
Z005QB    -0.414    -1.517  1.000000  1.000000    -1.0584   -1.037       Z005QB
Z008DS     2.492     9.344  1.023528  1.023528    31.4227   31.497       Z008DS
Z011QA    -2.322    -8.508  1.000000  1.000000    -5.9498   -5.908       Z011QA
Z012QB     3.409    12.490  1.000000  1.000000     8.8087    8.777       Z012QB
 ------------------------ Segment 1 ---------------------------------------
Z017TA     3.539     7.876  1.057000  1.057000    20.6555   20.754       Z017TA
Z019TB    -3.322    -7.060  1.010000  1.010000   -18.5775  -18.614       Z019TB
Z021TC     2.407     5.280  1.043000  1.043000    11.0670   11.110       Z021TC
Z026DS     3.226     6.724  0.992658  0.992658    41.2057   40.907       Z026DS
Z031TA     2.926     6.158  1.000000  1.000000    12.9209   13.003       Z031TA
Z033TB    -3.613    -7.602  1.000000  1.000000   -21.9736  -22.032       Z033TB
Z035TC     3.183     6.705  1.000000  1.000000    14.1559   14.284       Z035TC
 ------------------------ Segment 2 ---------------------------------------
Z039TA     3.183     6.705  1.000000  1.000000    14.0353   14.101       Z039TA
Z041TB    -3.562    -7.496  1.000000  1.000000   -21.6584  -21.727       Z041TB
Z043TC     2.924     6.157  1.000000  1.000000    12.8619   12.942       Z043TC
Z048DS    -3.226    -6.817  1.006246  1.006246   -42.6060  -42.507       Z048DS
Z053TA     2.800     5.883  1.000000  1.000000    12.3633   12.331       Z053TA
Z055TB    -3.665    -7.723  1.000000  1.000000   -20.8151  -20.811       Z055TB
Z057TC     3.264     6.960  1.000000  1.000000    65.8212   65.618       Z057TC
 ------------------------ Segment 3 ---------------------------------------
Z062TA     3.264     6.960  1.000000  1.000000    66.5001   66.359       Z062TA
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Date	Day of week	Shift start	Target	Shift leader	person 1	person 2	NW/VW
2/12/2018	Mon	0:00	E/A=140, shadow	Genie	Sean		ejungwoo
2/12/2018	Mon	8:00	58 (debug)	Justin	/Tommy	Sean	Sunho, Jeo
2/12/2018	Mon	16:00	58 (debug)	Kuan	Tommy	Daniele	Jong Won
2/13/2018	Tue	0:00	58	Genie			ejungwoo
2/13/2018	Tue	8:00	58	Justin	/Tommy	Sean	Sunho, Jeo
2/13/2018	Tue	16:00	112	Kuan	Tommy	Daniele/	Jong Won
2/14/2018	Wed	0:00	112	Genie	Hong		ejungwoo
2/14/2018	Wed	8:00	112	Daniele	/Tommy	/Sean	Sunho, Jeo
2/14/2018	Wed	16:00	112	Kuan	Tommy	Adam	Jong Won
2/15/2018	Thu	0:00	112	Sean	Aki, Hong		ejungwoo
2/15/2018	Thu	8:00	58	Daniele	/Tommy	/Adam	Genie
2/15/2018	Thu	16:00	58	Kuan	Tommy		Jong Won
2/16/2018	Fri	0:00	58	Sean	Aki		ejungwoo
2/16/2018	Fri	8:00	E/A=56 MeV	Daniele	/Tommy	/Justin	Genie
2/16/2018	Fri	16:00	CH2 (2-3 hr) & 58	Kuan	Tommy		Jong Won
2/17/2018	Sat	0:00	58	Sean	Aki		ejungwoo
2/17/2018	Sat	8:00	58	Lynch	/daniele	Fanurs	Genie
2/17/2018	Sat	16:00	112	Kuan	Betty/	Ding	Jong Won
2/18/2018	Sun	0:00	112	Daniele	Aki		ejungwoo
2/18/2018	Sun	8:00	112	Sean	/Jon	Fanurs	Genie
2/18/2018	Sun	16:00	58	Tsang	Kuan	Ding/	Jong Won
2/19/2018	Mon	0:00	58	Daniele	Aki		ejungwoo
2/19/2018	Mon	8:00	58	Sean	/Tommy	/Justin	Genie
2/19/2018	Mon	16:00	112	Tsang	Tommy	/Daniele	Jong Won
2/20/2018	Tue	0:00	112	Kuan	Aki, Hong		ejungwoo
2/20/2018	Tue	8:00	112	Daniele	/Tommy	/Juan	Genie
2/20/2018	Tue	16:00	58	Tommy			Jong Won
2/21/2018	Wed	0:00	58	Kuan	Hong		ejungwoo
2/21/2018	Wed	8:00	58	Daniele	/Tommy	/Jon	Genie
2/21/2018	Wed	16:00	112	Tommy		Adam	Jong Won
2/22/2018	Thu	0:00	112	Kuan	Hong		ejungwoo
2/22/2018	Thu	8:00	112	Jon	/Tommy	/Adam	Genie
2/22/2018	Thu	16:00	E/A=140 MeV	Tsang	Tommy	Daniele/	Jong Won
2/23/2018	Fri	0:00	112	Kuan	Hong		ejungwoo
2/23/2018	Fri	8:00	112	Sean	/Tommy	Danele/	Genie
2/23/2018	Fri	16:00	58	Tsang	Tommy		Jong Won
2/24/2018	Sat	0:00	58	Sean			ejungwoo
2/24/2018	Sat	8:00	124?	Daniele	/Tommy	/Juan	Genie
2/24/2018	Sat	16:00	124?	Kuan	Tommy		Jong Won
2/25/2018	Sun	0:00	124?	Sean			ejungwoo
2/25/2018	Sun	8:00	124?	Daniele	Betty/		Genie
2/25/2018	Sun	16:00	catch up	Kuan	Betty		Jong Won
2/26/2018	Mon	0:00	catch up	Daniele			ejungwoo
2/26/2018	Mon	8:00	catch up	Sean	/Tommy		Genie